

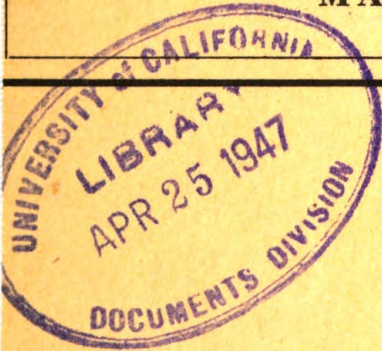
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WAR DEPARTMENT
 14.5. Dept of Army
 TECHNICAL MANUAL

ORDNANCE MAINTENANCE

ALL TYPES

MARCH 18, 1943



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WAR DEPARTMENT
Washington, March 18, 1943

ORDNANCE MAINTENANCE

PYROTECHNIC PROJECTORS

ALL TYPES

Prepared under the direction of the
Chief of Ordnance

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ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

Section I

INTRODUCTION

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1. SCOPE.

a. This manual is published for the information and guidance of ordnance maintenance personnel. It contains detailed instructions for disassembly, assembly, inspection, maintenance, and repair of the following materiel:

- (1) Ground Signal Projector M1A1.
- (2) Ground Signal Projector M3.
- (3) Ground Signal Projector M4.
- (4) Pyrotechnic Pistol M2.
- (5) Pyrotechnic Pistol AN-M8 and Pyrotechnic Pistol Mount M1.
- (6) Pyrotechnic Discharger AN-M5.
- (7) Hand Pyrotechnic Projector M9.
- (8) Very Pistol, 10-gage, Mk. III.
- (9) Very Pistol M5.

b. These instructions are supplementary to those in the field and technical manuals issued to the using arms. Additional descriptive matter and illustrations are included to aid in providing a complete working knowledge of the materiel.

2. CHARACTERISTICS.

a. The chief distinguishing characteristics of the materiel listed in the above pyrotechnic projectors, and use for which each type is employed, are as follows:

(1) **GROUND SIGNAL PROJECTOR M1A1** (fig. 1). This is a single-loading, manually-operated projector used for firing high-burst ranging signals for field artillery training. It is fired by pulling a lanyard. The average height of the burst is about 700 feet.

(2) **GROUND SIGNAL PROJECTOR M3** (fig. 2). This is a single-loading, manually-operated projector used by ground troops for signalling between

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Figure 1 — Projector, Signal, Ground, M1A1

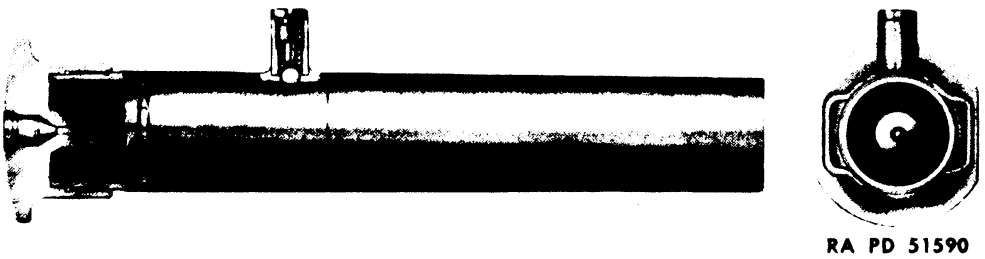


Figure 2 — Projector, Signal, Ground, M3

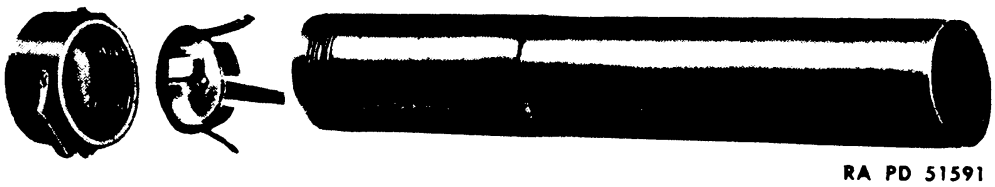


Figure 3 — Projector, Signal, Ground, M4 (Early Manufacture)



Figure 4 — Projector, Signal, Ground, M4 (Present Manufacture)

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES



Figure 5 — Pistol, Pyrotechnic, M2

troops on the ground or to aircraft. It is fired by holding it in the hand and striking the base on the ground. The approximate height of the burst is 600 feet.

(3) **GROUND SIGNAL PROJECTOR M4** (figs. 3 and 4). This projector is similar in appearance, operation, and use to the M3 Projector but of slightly different construction. It is issued and classified as "standard" materiel and will entirely supplant the M3 Projectors as soon as they become unserviceable. In the M4 Projector of early manufacture the cap has 2 separate brackets attached by screws. In the M4 Projector of present manufacture the ring on the outside of the cap forms 2 brackets.

(4) **PYROTECHNIC PISTOL M2** (fig. 5). This pistol is double-action, single-loading, and is used for signalling from aircraft in flight to troops on the ground, or to other aircraft.

(5) **PYROTECHNIC PISTOL AN-M8, WITH MOUNT M1** (fig. 6). This pistol is double-action, single-loading, and is used for signalling from aircraft in flight, to troops on the ground, or to other aircraft. This pistol can also be used without the mount. The Pyrotechnic Pistol AN-M8, with

INTRODUCTION



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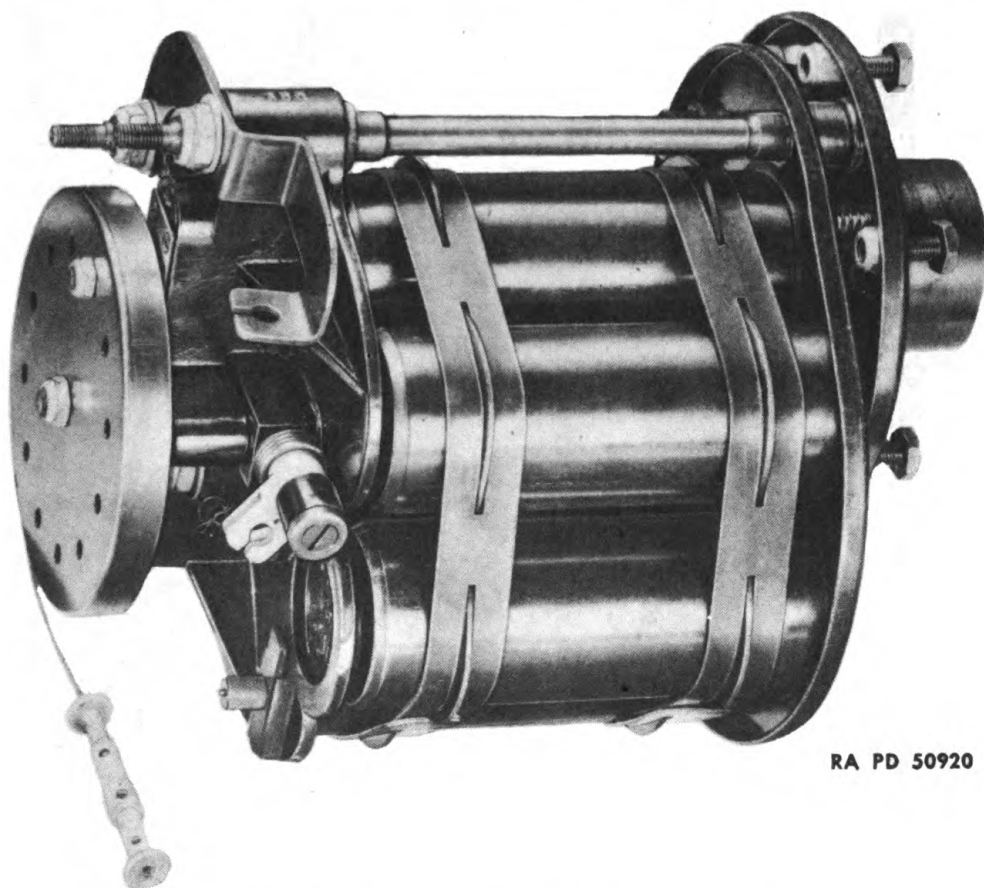
Figure 6 — Pistol, Pyrotechnic, AN-M8, With Mount M1

Mount M1, has identical military characteristics as the British No. 4 Mk. I Pistol.

(6) **PYROTECHNIC DISCHARGER AN-M5** (figs. 7 and 8). This discharger is double-action, multibarrel, and designed to be fired by the Remote Controller M2. The discharger and controller is a modification of the British Signal Discharger, 1½-inch, Mk. II equipped with a remote firing control. The modification consists principally in a reduction of the barrel length from 6 inches to 4½ inches and the use of standard ¼-inch, 28-threads-per-inch mounting nuts in place of the British type nuts on the mounting plate. The discharger is used on airplanes where installation of pyrotechnic pistols is not practical. It is used for signalling from an airplane in flight to troops on the ground, or to other aircraft.

(7) **HAND PYROTECHNIC PROJECTOR M9** (fig. 9). The Hand Pyrotechnic Projector M9 is single-action and single-loading. It can be fired by striking the firing pin with the hand or by striking the firing pin on the ground. It is used for projecting signals from the ground to aircraft in flight.

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Figure 7 — Discharger, Pyrotechnic, AN-M5 — Right Side View

(8) VERY PISTOL, 10-GAGE, MK. III (fig. 10). This pistol is single-action, single-loading, and is used by lightly equipped ground troops or by tanks for signalling from the ground or from moving vehicles on the ground. The approximate height of the signal trajectory is 200 feet.

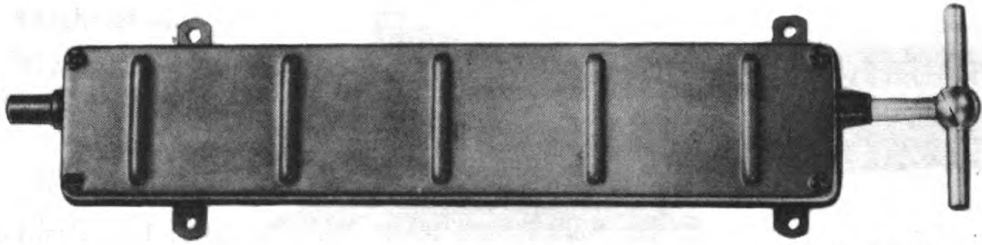
(9) VERY PISTOL M5 (fig. 11). This pistol is single-action, single-loading, and is used in the same manner and for the same purpose as the Very Pistol, 10-gage, Mk. III. It is considerably lighter in weight than the Very Pistol, 10-gage, Mk. III.

3. DATA.

a. Ground Signal Projector M1A1.

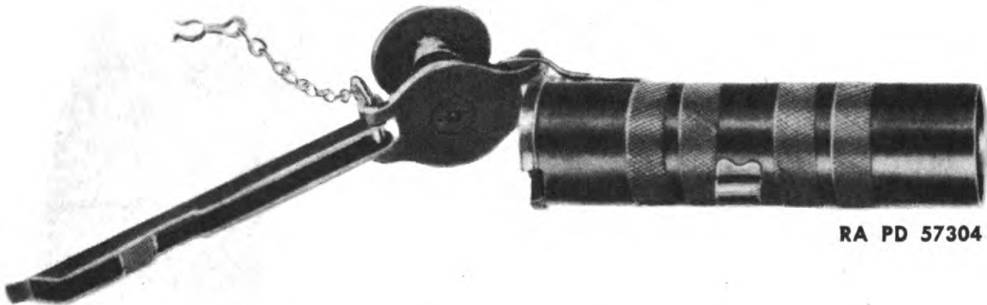
Weight, with support	12.67 lb
Length	15¾ in.
Length, with support (approx.)	49 in.
Length of spike	10¾ in.

INTRODUCTION



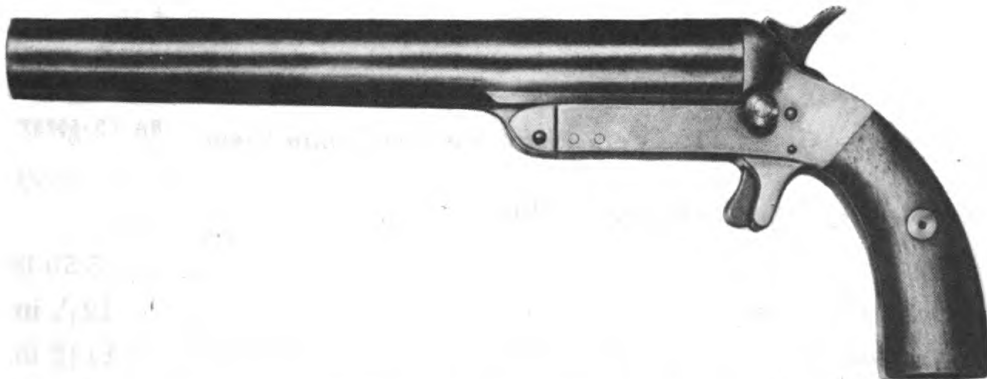
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Figure 8 — Remote Controller M2



RA PD 57304

Figure 9 — Projector, Pyrotechnic, Hand, M9—Open View



RA PD 33198

Figure 10 — Very Pistol, 10-gage, Mk. III—Left Side View

Bore, smooth:

Diameter	1.636 in.
Length	11 $\frac{5}{8}$ in.

b. Ground Signal Projector M3.

Weight	2.73 lb
Length	12 $\frac{7}{16}$ in.

Bore, smooth:

Diameter	1.656 in.
Length	11 $\frac{5}{8}$ in.

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Figure 11 — Very Pistol M5 — Left Side View RA PD 50757

c. Ground Signal Projector M4.

Weight	3.50 lb
Length, over-all (early manufacture)	$12\frac{3}{16}$ in.
Length, over-all (present manufacture)	$11\frac{1}{8}$ in.
Bore, smooth:	
Diameter	1.656 in.
Length	$11\frac{5}{8}$ in.

d. Pyrotechnic Pistol M2.

Weight	3.09 lb.
Length	$5\frac{7}{16}$ in.
Trigger pull	20–22 lb

e. Pyrotechnic Pistol AN-M8, With Mount M1.

Length of barrel	$4\frac{1}{8}$ in.
Weight	2.13 lb

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Weight of mount 1.25 in.
Trigger pull 5-8 lb
Diameter 1.88 in.

f. Pyrotechnic Discharger AN-M5.

Number of barrels 6
Length of barrel 4.5 in.
Weight of discharger 8.625 lb
Weight of controller 0.875 lb
Bore, smooth:
Diameter 1.576 in.
Length 4.485 in.

g. Hand Pyrotechnic Projector M9.

Weight 1 lb
Length, over-all 8 in.
Diameter $1\frac{9}{16}$ in.

h. Very Pistol, 10-gage, Mk. III.

Weight 2.42 lb
Length $12\frac{1}{8}$ in.
Bore, smooth:
Gage 10
Length 9 in.

i. Very Pistol M5.

Weight 1.63 lb
Length 7.5 in.
Trigger pull 6 lb
Bore, smooth:
Gage 10
Length $4\frac{5}{16}$ in.

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Section II

DISASSEMBLY AND ASSEMBLY

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Tools	4
Ground signal projector M1A1	5
Ground signal projector M3	6
Ground signal projector M4	7
Pyrotechnic pistol M2	8
Pyrotechnic pistol AN-M8, with mount M1	9
Pyrotechnic discharger AN-M5	10
Hand pyrotechnic projector M9	11
Very pistol, 10-gage, Mk. III	12
Very pistol M5	13

4. TOOLS.

a. Ordinary tools necessary for disassembly, assembly, inspection, maintenance, and repair are carried on the Small Arms Repair Truck M1 and are listed in SNL G-72. The only special tools required are as follows: a face spanner wrench, $\frac{5}{8}$ inch center to center, pin diameter of $\frac{1}{8}$ inch, a $\frac{1}{16}$ -inch hexagonal wrench used in disassembly and assembly of Pyrotechnic Pistol AN-M8, and a straddle screwdriver used in disassembly and assembly of Pyrotechnic Pistol AN-M5. Figure 12 shows dimensioned drawings of the spanner wrench and the straddle screwdriver. The $\frac{1}{16}$ -inch hexagonal wrench may be made from a piece of a $\frac{3}{32}$ -inch rod. The hexagonal and spanner wrenches are issued with parts for the application of replacing the firing pin and springs of the Pyrotechnic Pistol AN-M8. This modification was authorized by FSMWO B33-W1, January, 1943.

5. GROUND SIGNAL PROJECTOR M1A1 (fig. 13).**a. Disassembly Of Projector.**

(1) Unscrew barrel from the base. It may be necessary to place the base in a vise with wooden jaws and unscrew the barrel with a strap wrench. The application of OIL, penetrating, in advance of this operation is sometimes advantageous.

(2) Withdraw cotter pin from fulcrum pin and withdraw fulcrum pin and lever.

(3) Remove striker and unscrew firing pin.

DISASSEMBLY AND ASSEMBLY

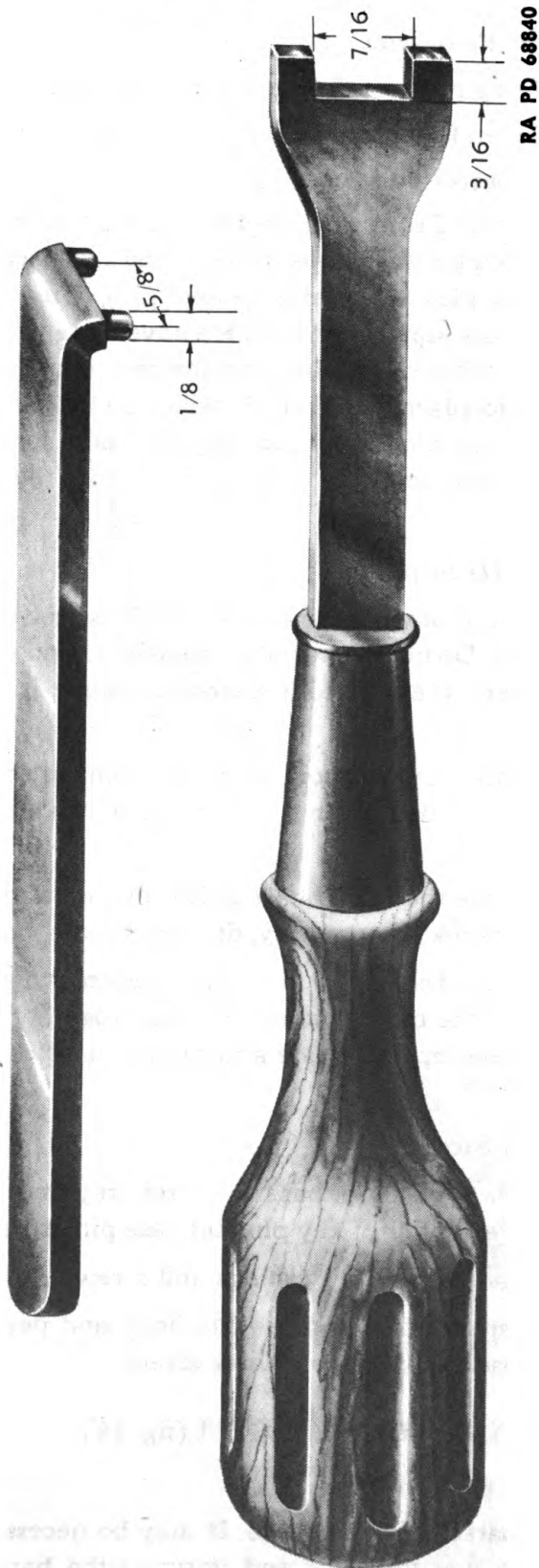


Figure 12 — Spanner Wrench And Straddle Screwdriver

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES**h. Assembly Of Projector.**

- (1) Replace firing pin in striker and striker in breech.
- (2) Replace lever, fulcrum pin, and cotter pin.
- (3) Screw the barrel into the breech.

NOTE: Some M1A1 Projectors are the M1 models with new barrels. In such cases, disassemble the projector as follows: Unscrew barrel from breech; then unscrew plug screw and remove plug. Unscrew thumbpiece and remove thumbpiece spring and lock. Remove cotter pin and withdraw fulcrum pin and lever. Remove striker and unscrew firing pin. To assemble, proceed as follows: Replace firing pin in striker and striker in breech. Replace lever, fulcrum pin, and cotter pin. Replace lock, spring, and thumbpiece. Replace plug and screw in plug screw. Screw the barrel into the breech.

c. Disassembly Of Support.

(1) Unscrew and remove spike lock screw. Unscrew the spike and remove it from the base. Do not disassemble spike head and point as they are pinned to the body and the pin heads are countersunk. If necessary, drive out pins.

(2) Unscrew base from support body and remove the base bushing, but do not remove the body bushing. To remove it, drive it out from other end.

(3) Do not remove the holder base as it is pinned to the body and the pinheads are countersunk. If necessary, drive out pins.

(4) Do not remove the holder key unless necessary, as it is pinned to the body and fastens the base, holder, and body together. If necessary to remove, drive out from opposite side and drive out holder from opposite end of base with a drift.

d. Assembly Of Support.

(1) Replace holder in holder base and insert key through base, holder, and support body. Peen ends of key pin and base pin as before.

(2) Replace base and body bushings and screw onto body as before.

(3) Assemble spike point and head to body and peen heads of pins. Replace spike in base. Replace spike lock screw.

6. GROUND SIGNAL PROJECTOR M3 (fig. 14).**a. Disassembly Of Projector.**

(1) Unscrew barrel from the base. It may be necessary to place the base in a vise with wooden jaws and unscrew the barrel with a strap

DISASSEMBLY AND ASSEMBLY

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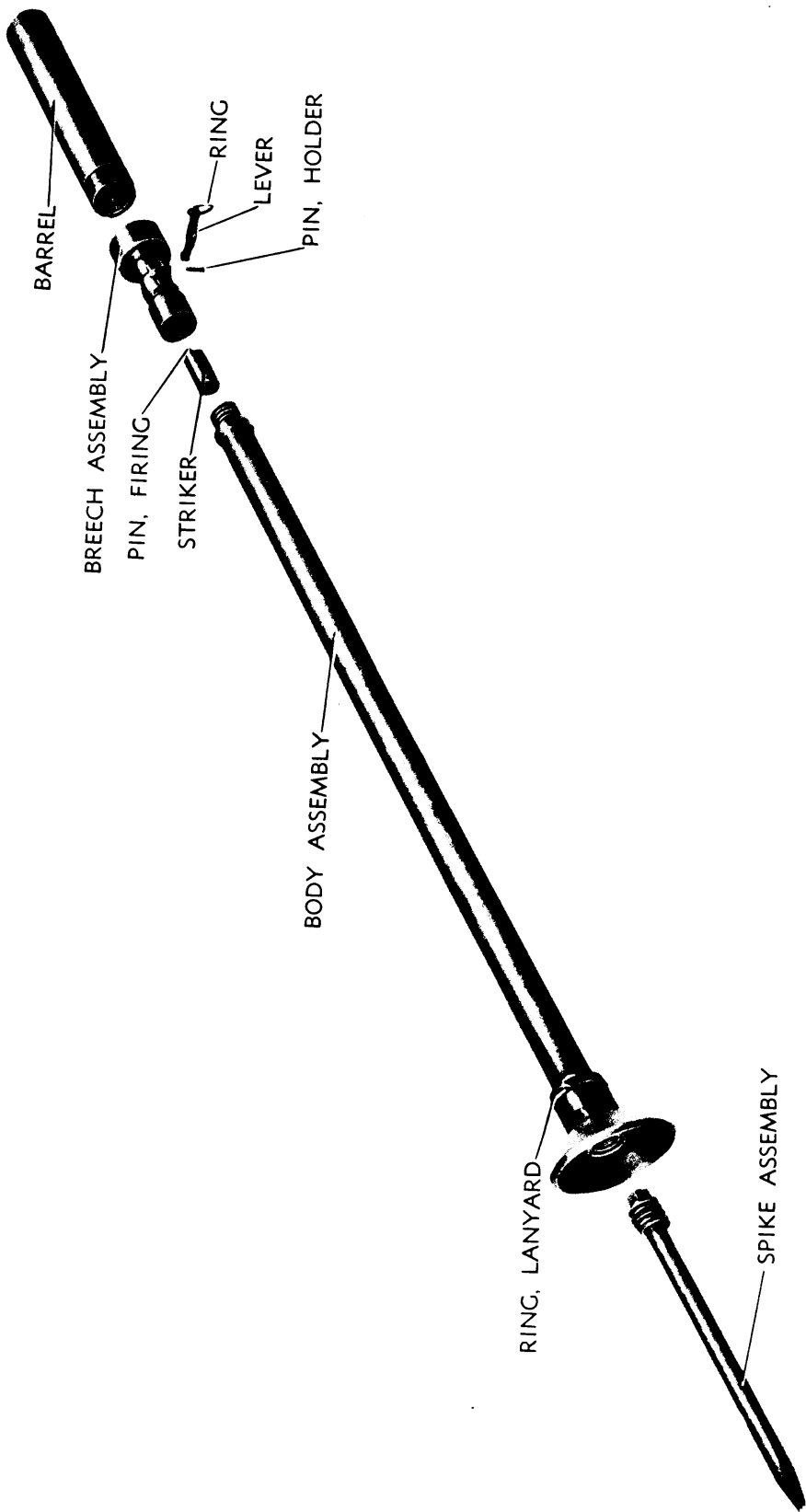


Figure 13 — Projector, Signal, Ground, M1A1 — Parts

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wrench. The application of OIL, penetrating, in advance of this operation is sometimes advantageous.

(2) Unscrew the projector screw and remove projector spring and ball.

(3) Unscrew and remove firing pin from base.

b. Assembly Of Projector.

(1) Replace firing pin in base and screw in as far as possible.

(2) Replace ball, spring, and projector screw. Make certain screw-head is up tight.

(3) Screw barrel firmly into base.

c. Disassembly And Assembly Of Sling. Do not disassemble the sling unless to replace some part, as it is necessary to spread brass keepers or rip out the fold in the end of the long strap. The snap hooks are riveted to the straps.

7. GROUND SIGNAL PROJECTOR M4 (figs. 15 and 16).**a. Disassembly Of Projector.**

(1) Unscrew barrel from cap and remove base assembly. It may be necessary to place the cap in a vise with wooden jaws, taking care not to damage brackets, and unscrew barrel with a strap wrench. The application of OIL, penetrating, in advance of this operation, is sometimes advantageous.

(2) Do not disassemble base assembly unless necessary, as it is riveted together by the firing pin. If necessary, to replace some part, drive out firing pin from bottom of base.

(3) Do not unscrew the bracket screws from cap (early manufacture) unless necessary.

(4) Do not remove bracket ring from cap (present manufacture) unless necessary, as the ends are tack-welded.

b. Assembly Of Projector.

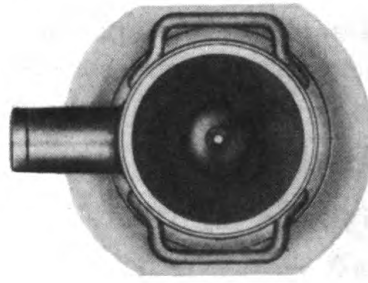
(1) If bracket ring has been removed from cap (present manufacture) replace and tack-weld the ends.

(2) Replace brackets on cap (early manufacture) and replace screws securely.

(3) Assemble base, spring, washer, and firing pin, and rivet base of firing pin.

(4) Replace base in barrel and screw cap securely to barrel.

DISASSEMBLY AND ASSEMBLY



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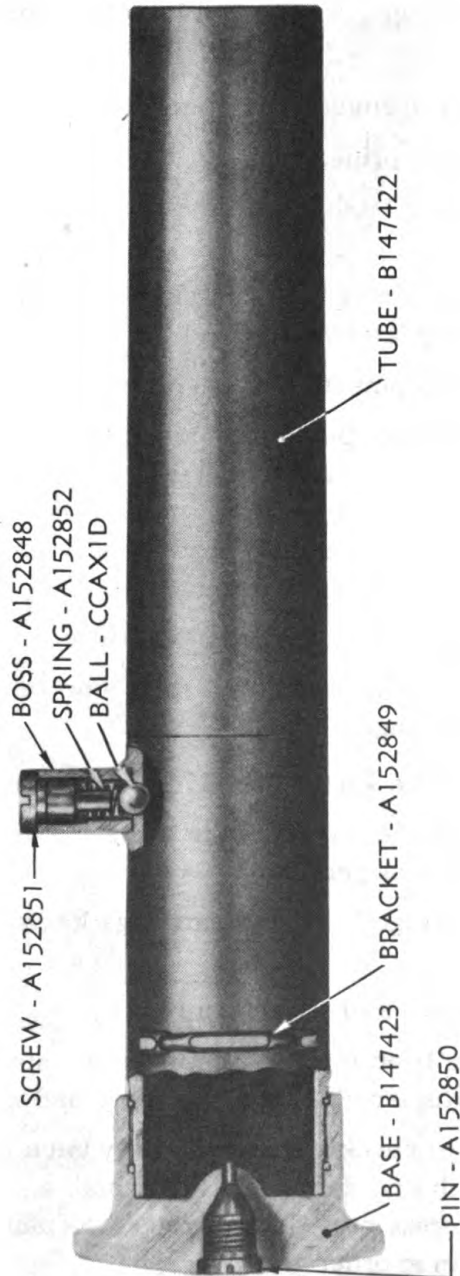


Figure 14 — Projector, Signal, Ground, M3

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c. **Disassembly And Assembly Of Sling.** Do not disassemble the sling unless to replace some part, as it is necessary to spread the brass keepers or rip out the fold in the end of the long strap. The snap hooks are riveted to the straps.

8. PYROTECHNIC PISTOL M2 (fig. 17).

a. **Disassembly (fig. 17).** The pistol should be disassembled in the following order:

- (1) Unscrew pistol grip screws and remove right-hand and left-hand pistol grips.
- (2) Unscrew breech cover screws and remove breech cover.
- (3) Remove firing spring.
- (4) Unscrew safety latch stop plate screw and remove safety latch stop plate.
- (5) Drive out stop pin, safety latch pin, and spring pin. Remove safety latch, trigger and safety latch spring, and the frame cheeks spacer.

NOTE: Drive out all pins from side with beveled end.

- (6) Drive out hammer pin and remove hammer assembly. The hammer assembly should not be disassembled other than the removal of firing pin and sear spring in case these parts require replacement. The firing pin may be driven out with a small punch, and the sear spring may be removed with long-needle-nose pliers.
- (7) Unscrew trigger screw and remove trigger.
- (8) Drive out cartridge latch pin to rear and remove cartridge latch and cartridge latch spring.

b. **Assembly Of The Pistol (fig. 17).**

- (1) In assembling the pistol be sure to start beveled ends of pins into holes and drive in all pins gently.
- (2) Replace cartridge latch and cartridge latch spring. Drive in cartridge latch pin.
- (3) Replace trigger and trigger screw.
- (4) If they have been removed, replace sear spring and firing pin in hammer assembly. Replace hammer assembly and drive in hammer pin.
- (5) Replace frame cheek spacer and safety latch spring in safety latch. Assemble safety latch and spring to frame, making sure that end of the spring is seated in recess provided in trigger. Replace spring pin, safety latch pin, and stop pin in order given.

DISASSEMBLY AND ASSEMBLY

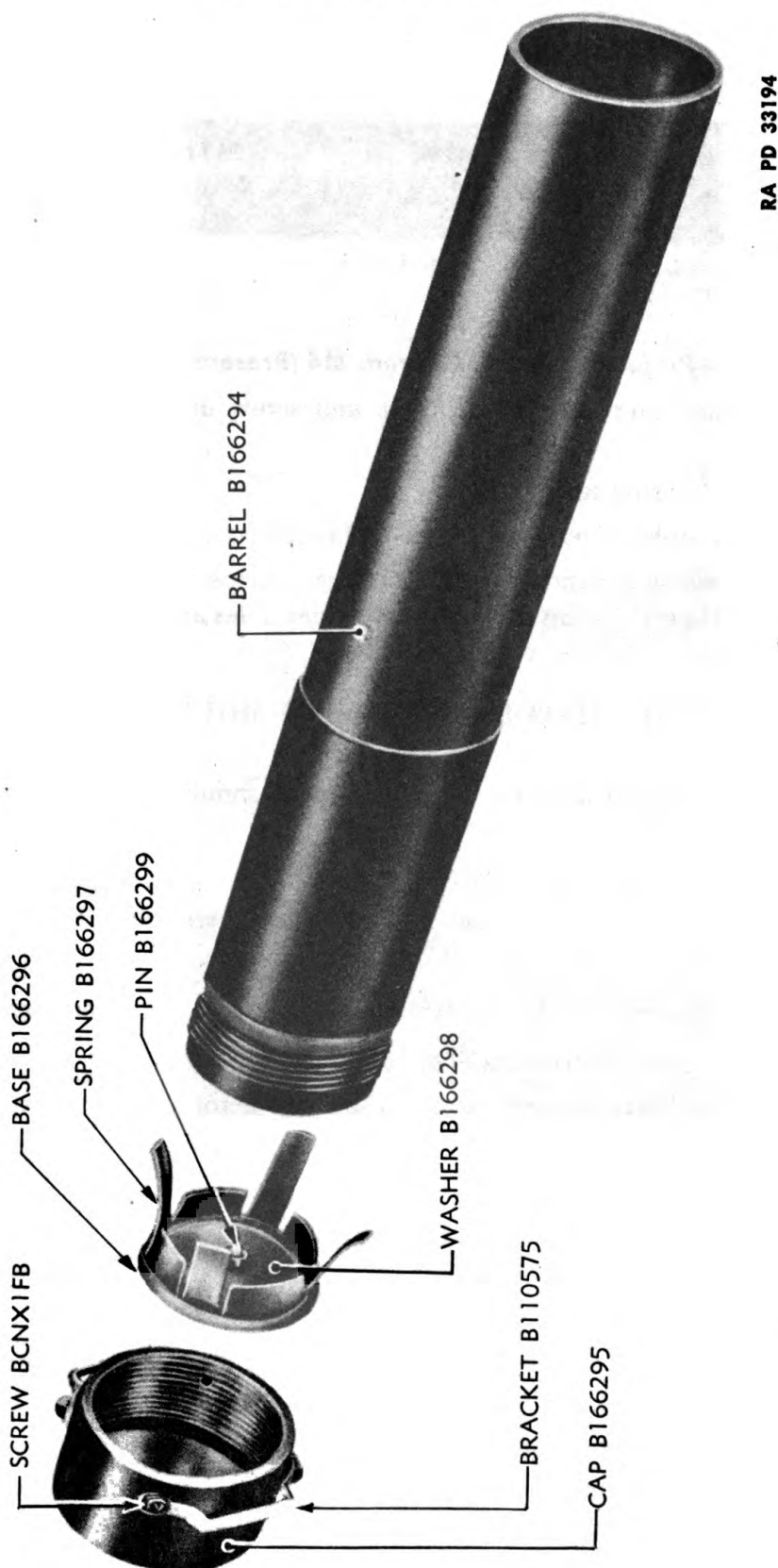


Figure 15 — Projector, Signal, Ground, M4 (Early Manufacture)

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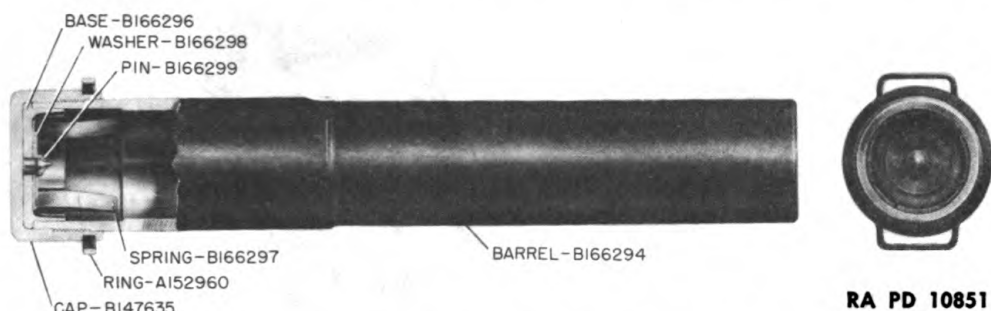


Figure 16 — Projector, Signal, Ground, M4 (Present Manufacture)

(6) Replace safety latch stop plate and screw in safety latch stop plate screw.

(7) Replace firing spring.

(8) Put on breech cover and screw in breech cover screws.

(9) Replace right-hand and left-hand pistol grips and screw in pistol grip screws, putting the short screws in the upper holes and the long screws in the lower holes.

9. PYROTECHNIC PISTOL AN-M8, WITH MOUNT M1 (figs. 18 and 19).

a. Removal Of Groups (fig. 18). The groups should be disassembled in the following order:

- (1) Unscrew trigger guard screw.
- (2) Unscrew barrel pivot screw and force out barrel pivot stud.
- (3) Pull trigger guard off the frame.
- (4) Drive out ejector pin and remove barrel group from frame group.

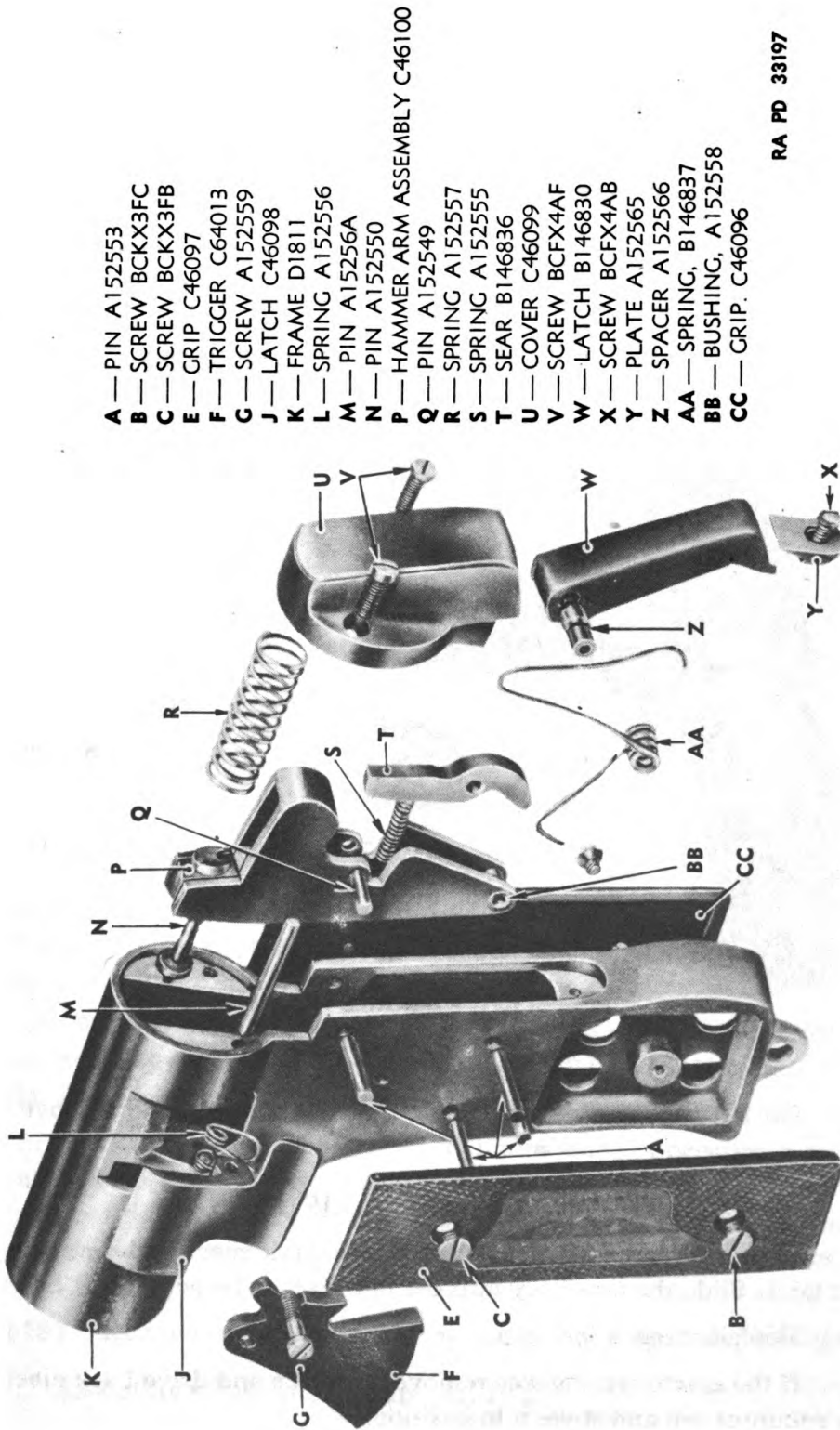
b. Replacement Of Groups (fig. 18).

- (1) Replace barrel group in frame. Line up ejector and ejector spring and insert ejector pin in position in frame.
- (2) Replace trigger guard on frame.
- (3) Insert barrel pivot stud in position and screw in barrel pivot stud screw.
- (4) Screw in back trigger guard screw.

c. Disassembly Of Barrel Group (fig. 19). Do not disassemble unless necessary.

- (1) Punch out breech lock pin with drift.
- (2) Grasp the mount latch and slide it out of the breech lock housing. The breech lock, breech lock spring, and the latch spring will also be with drawn by this action.

DISASSEMBLY AND ASSEMBLY



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Figure 17 — Pistol, Pyrotechnic, M2—Parts

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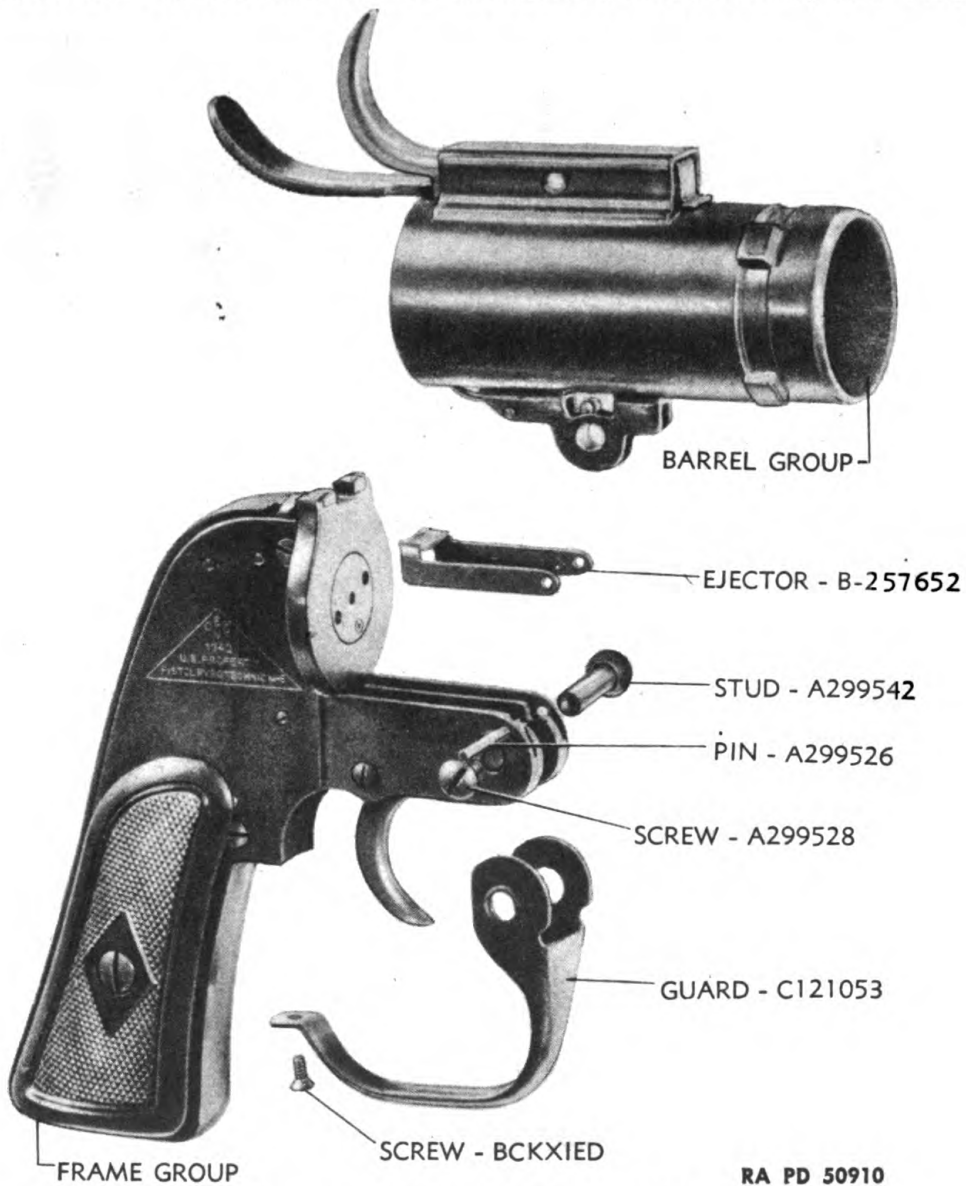


Figure 18 — Pistol, Pyrotechnic, AN-M8 — Groups

(3) Do not remove ejector spring unless necessary. To remove it, drive out ejector spring retaining pin.

d. Assembly Of The Barrel Group (fig. 19).

(1) Insert mount latch spring, breech lock, and breech lock spring into mount latch. Slide the assembly into the breech lock housing.

(2) Replace breech lock pin.

(3) If the ejector spring was removed, replace and drive back ejector spring retaining pin and stake it in position.

e. Disassembly Of Frame Group (fig. 19).

DISASSEMBLY AND ASSEMBLY

- (1) Unscrew grip screw and remove grip stud.
- (2) Lift off left-hand and right-hand grips.
- (3) Remove screws on cover plate including trigger screw.
- (4) Lift off cover plate.
- (5) Unscrew barrel hinge spring screw and remove barrel hinge spring.
- (6) Lift out hammer spring.
- (7) Lift out hammer.
- (8) Lift out pawl trip roller.
- (9) Lift out safety lever and safety lever spring together. Do not remove safety lever unless necessary.

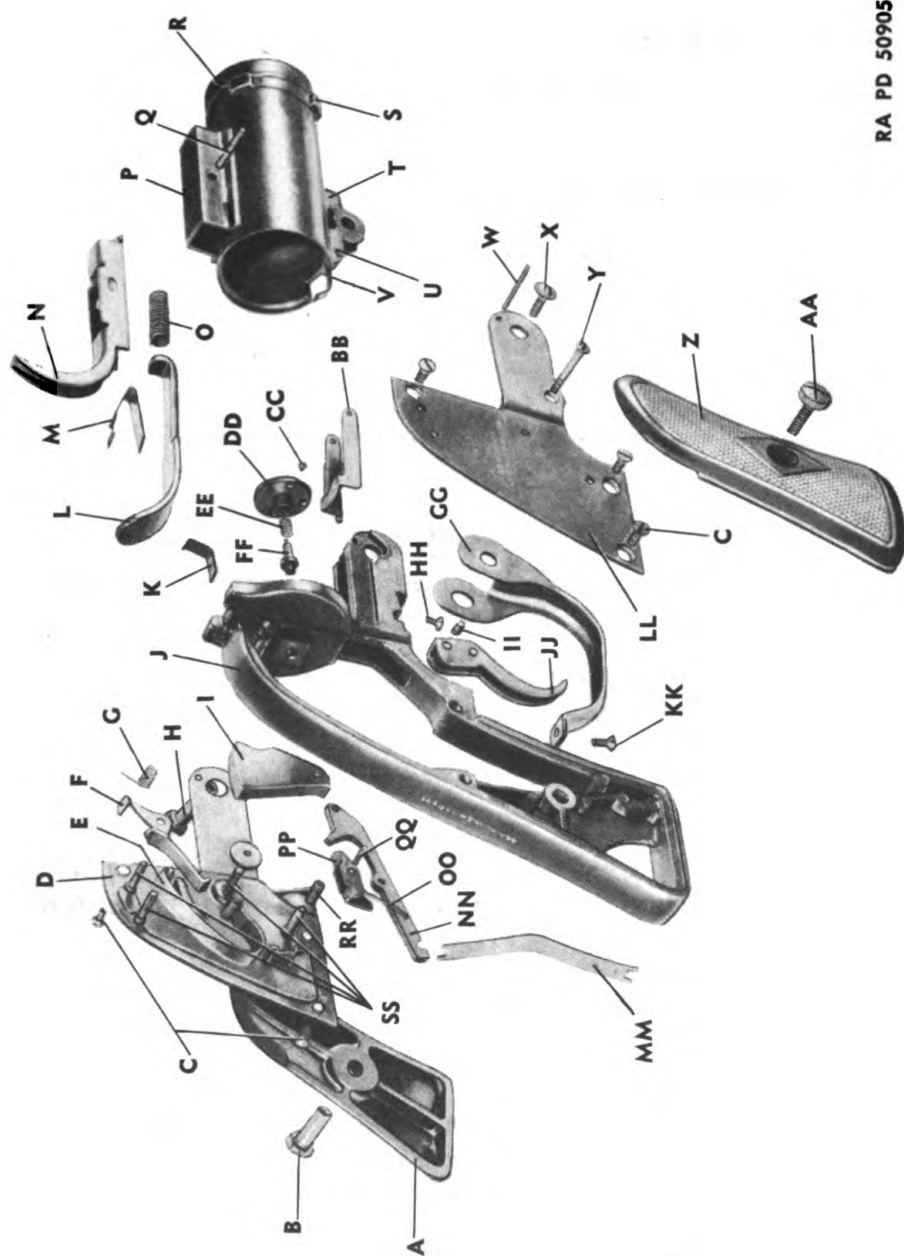
NOTE: All subsequent disassembly should be performed only when necessary.

- (10) Slide out safety lever spring from safety lever.
- (11) Unscrew back plate screws and push out back plate assembly from frame.
- (12) Force rear end of trigger slide upward to disengage from trigger slide spring. Remove trigger spring.
- (13) Drive out trigger pawl pin and remove trigger pawl.
- (14) Lift out trigger pawl spring.
- (15) Pull rear end of trigger slide downward in frame. This action withdraws trigger partly into frame and exposes trigger slide pin. Lift out trigger slide pin. Remove trigger and trigger slide.
- (16) Use a $\frac{1}{8}$ -inch hexagonal socket-head set screw wrench and unscrew bushing retainer set screw. (The hexagonal wrench is issued with parts. This tool may also be made (par. 4)).
- (17) Use a face spanner wrench, $\frac{5}{8}$ inch center to center, and diameter of pin $\frac{1}{8}$ inch, and unscrew bushing retainer part way. Press face of bushing retainer with thumb to dislodge firing pin bushing from frame. Unscrew bushing retainer completely and remove firing pin bushing. (The spanner wrench is issued with parts (par. 4)).
- (18) Remove firing pin and firing pin spring from firing pin bushing.

f. Assembly Of Frame Group (fig. 19).

- (1) Insert firing pin bushing into place in frame. Replace firing pin spring on firing pin and insert the assembly into firing pin bushing.

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RA PD 50905

Figure 19 — Pistol, Pyrotechnic, AN-M8 — Parts

DISASSEMBLY AND ASSEMBLY

A — GRIP - C121055	P — HOUSING - A299547	EE — SPRING - A299534
B — STUD - A295823	Q — PIN - A299527	FF — PIN - A299549
C — SCREW - BCKX1ED	R — BARREL - B257645	GG — GUARD - C121053
D — BODY, BACK PLATE	S — LUG - A299541	HH — SCREW - A299548
E — SPRING - A299535	T — HINGE - B257651	II — PIN - A295824
F — LEVER - B257644	U — PIN - A299525	JJ — TRIGGER - B257654
G — SPRING - A299537	V — SPRING - A299533	KK — SCREW - BCKX1ED
H — STUD - A299542	W — PIN - A299526	LL — PLATE - B257650
I — HAMMER - B257657	X — SCREW - A299528	MM — SPRING - A299538
J — FRAME - D44080	Y — SCREW - A299545	NN — SLIDE - B257655
K — SPRING - A299530	Z — GRIP - C121056	OO — SPRING - A299539
L — LOCK - B257641	AA — SCREW - A299529	PP — PAWL - B257643
M — SPRING - A295821	BB — EJECTOR - B257652	QQ — PIN - A299532
N — LATCH - B257649	CC — SET SCREW - NO. 6-32	RR — ROLLER - A299544
O — SPRING - A299536	DD — RETAINER - A295820	SS — PINS - A299546
		NC - 3 X 1/8
		RA PD 50905A

Legend For Figure 19 — Pistol, Pyrotechnic, AN-M8 — Parts

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(2) Replace back bushing retainer into frame and screw it in, using spanner wrench.

(3) Screw the bushing retainer set screw into its recess in the bushing retainer. Use the $\frac{1}{8}$ -inch hexagonal socket-head set screw wrench for this operation.

(4) Replace the trigger slide in the frame and the trigger through its recess in the frame. Push the trigger into frame so that the hole receiving the trigger slide pin is visible. Position trigger slide so that its trigger slide pinhole aligns with that of the trigger, and insert trigger slide pin.

(5) Replace trigger pawl spring.

(6) Position trigger pawl over trigger slide and insert trigger pawl pin.

(7) Assemble trigger spring into position in frame. Care must be taken that the spring is inserted with the concave side (frame end of spring) facing forward. Force the trigger slide end of the spring slightly forward and slip the trigger slide into position over trigger spring.

(8) Replace the back plate assembly on frame and screw in back plate screws.

(9) Slide safety lever spring into safety lever.

(10) Replace safety lever assembly into position in frame, compressing long arm of safety spring toward hammer end of safety lever and simultaneously forcing downward on safety lever pin.

(11) Replace pawl trip roller.

(12) Replace hammer.

(13) Replace hammer spring.

(14) Replace barrel hinge spring, and screw in barrel hinge spring screw.

(15) Replace cover plate and screw in back cover plate screws.

(16) Position trigger so that trigger screw can be screwed in.

(17) Replace left-hand and right-hand grips.

(18) Insert grip stud and screw in back grip screw.

g. Disassembly Of Mount M1 (fig. 20). The mount should be disassembled in the following order only when necessary:

(1) Remove mount from aircraft.

(2) Replace 2 mount base plate bolts and nuts on diagonally opposite holes on mount base plate.

DISASSEMBLY AND ASSEMBLY

RA PD 50908

- A — CAP-B261072
- B — SPRING-A299561
- C — GUIDE-A299563
- D — RIVET-A299562
- E — RIVET-A299550
- F — COVER-B257659
- G — CASE-A299552
- H — SPRING-A299558
- I — PLATE-B261073
- J — GASKET-B257668
- K — SLEEVE - A299551
- L — CHAIN-SDBX1A
- M — RING-A299564

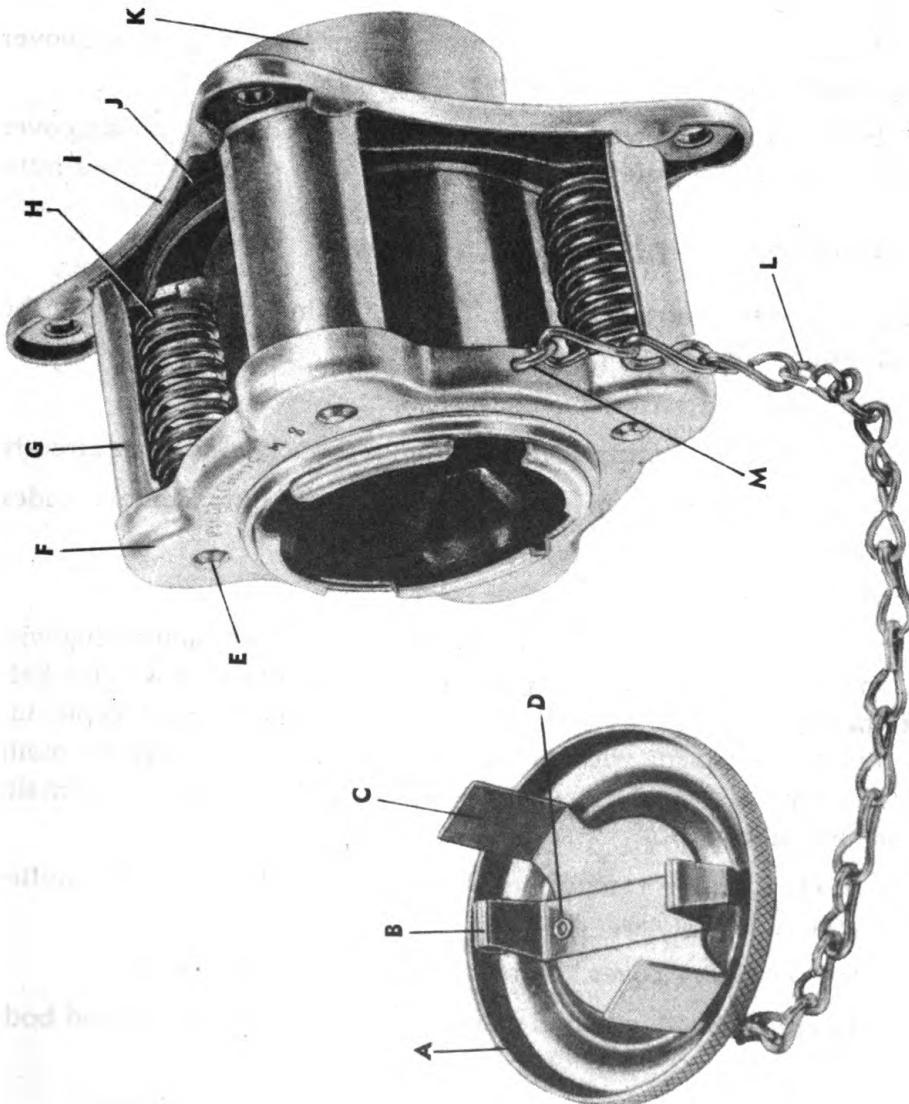


Figure 20 — Mount, Pyrotechnic Pistol, M1

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

- (3) Pry up locking flaps of mount base plate.
- (4) Carefully unscrew mount base plate bolts. This action will relieve the compression of the recoil springs. Slide off mount base plate.
- (5) Slide off mount cover assembly and remove recoil springs.
- (6) Slide off mount cushioning gasket from recoil sleeve assembly.

h. Assembly Of Mount M1.

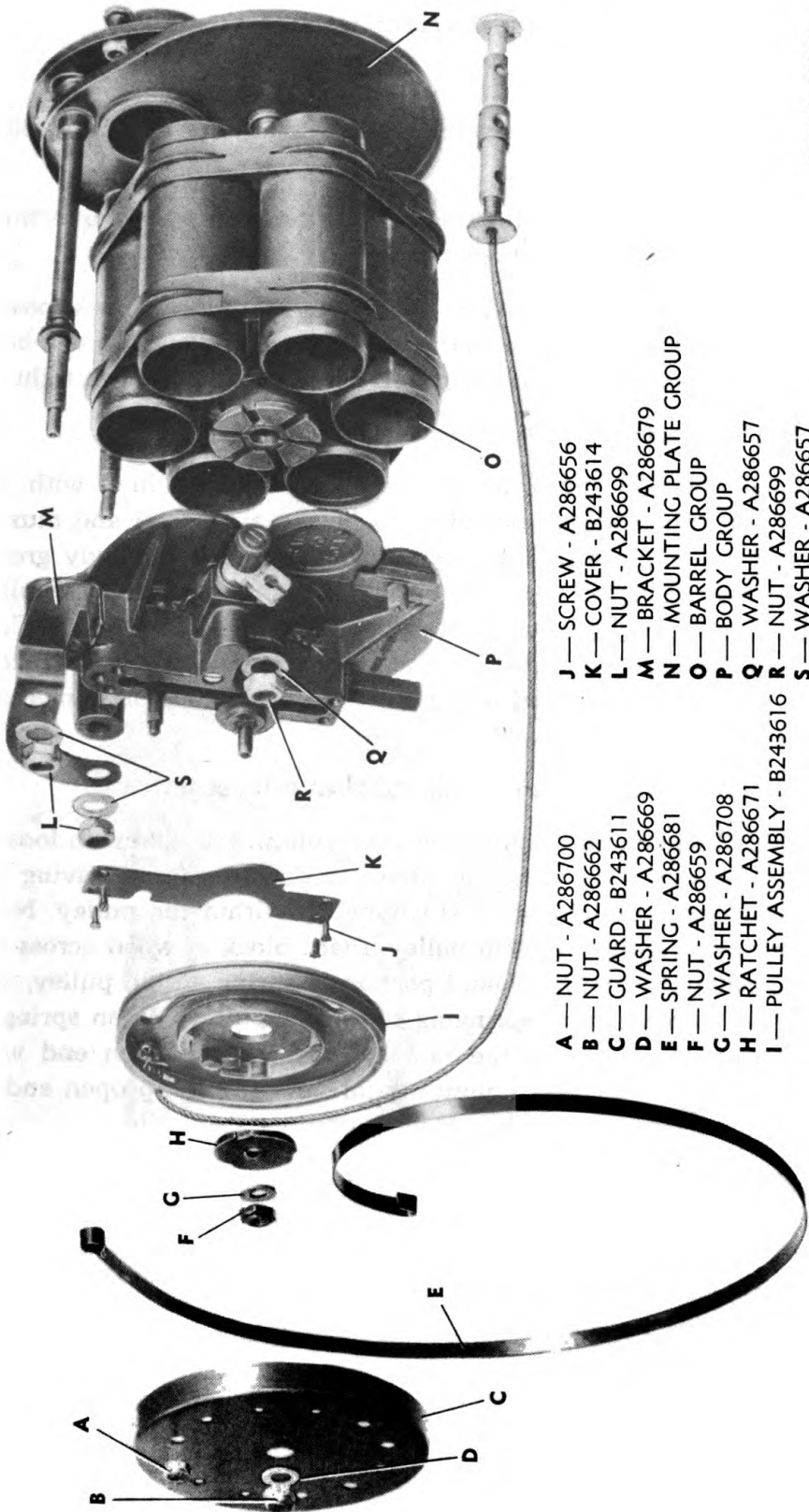
- (1) Slide mount cushioning gasket onto recoil sleeve assembly.
- (2) Fit recoil springs into position on recoil sleeve.
- (3) Slide mount cover assembly onto recoil sleeve assembly. Make certain that the open end of recoil sleeve fits over rivet heads.
- (4) Replace mount base plate. Insert 2 mount base plate bolts through diagonally opposite holes on mount base plate and mount cover assembly. Screw nuts on bolts and draw up evenly.
- (5) Bend flaps of mount base plate over to lock the mount cover assembly to mount base plate. Remove mount base plate bolts and nuts.

10. PYROTECHNIC DISCHARGER AN-M5.

a. Removal Of Groups (fig. 21). The groups may be removed in the following order:

- (1) Unscrew and remove cable adjuster.
- (2) Unscrew 6 mounting bolts and remove discharger from aircraft.
- (3) Unscrew pulley stop nut and index shaft nut. Remove index shaft washer.
- (4) Remove pulley guard.
- (5) Screw back pulley stop nut. Slip off open end of mainspring with pliers from inner pulley lug, taking precaution that block of wood is held against the rear face of the pulley. This action will prevent rapid unwinding of the mainspring with its attendant dangers. Next, unwind mainspring carefully; then unscrew pulley stop nut and lift closed end of mainspring off the pulley stop.
- (6) Unscrew pulley ratchet nut. Lift out ratchet washer and pulley ratchet. Remove pulley assembly.
- (7) Unscrew body cover screws and remove body cover.
- (8) Unscrew tie rod nuts and spindle nut. Remove washers and body bracket.
- (9) Slide body group off tie rods and barrel register spindle.

DISASSEMBLY AND ASSEMBLY



- | | |
|-------------------------------|--------------------------|
| A — NUT - A286700 | J — SCREW - A286656 |
| B — NUT - A286662 | K — COVER - B243614 |
| C — GUARD - B243611 | L — NUT - A286699 |
| D — WASHER - A286669 | M — BRACKET - A286679 |
| E — SPRING - A286681 | N — MOUNTING PLATE GROUP |
| F — NUT - A286659 | O — BARREL GROUP |
| G — WASHER - A286708 | P — BODY GROUP |
| H — RATCHET - A286671 | Q — WASHER - A286657 |
| I — PULLEY ASSEMBLY - B243616 | R — NUT - A286699 |
| | S — WASHER - A286657 |

RA PD 50925

Figure 21 — Discharger, Pyrotechnic, AN-M5 — Groups

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

(10) Withdraw mounting plate group from barrel group.

b. Replacement Of Groups (fig. 21).

(1) Slide barrel group on barrel register spindle of mounting plate group.

(2) Replace body group, making certain that index shaft pins mate the channeled recesses of the index collar.

(3) Replace body bracket, then the washers, and screw back loosely the tie rod nuts. Replace washer on barrel register spindle and screw back loosely barrel register spindle nut. Now screw all nuts evenly to a tight fit.

(4) Replace body cover and screw in body cover screws.

(5) Look through the muzzle to see if barrel is alined with the muzzle. If not, rotate barrel assembly by hand until barrel and muzzle are alined. Next, replace pulley assembly into position on body group. See that the slotted part of the pulley is entirely to the right of the pulley stop. Then, insert pulley ratchet into position on the index shaft. Care must be taken at this point that the pulley ratchet is replaced *correctly*. When set correctly, the pulley pawl will be in position for immediate engagement with the ratchet.

(6) Replace ratchet washer and screw in ratchet nut.

(7) Slip closed end of mainspring over pulley stop. Screw in loosely the pulley stop nut. This will prevent the mainspring from leaving the pulley stop when the mainspring is wound up within the pulley. Next, wind mainspring carefully within pulley. Place block of wood across the rear of the pulley to confine wound portion of spring within pulley, and to prevent mainspring from springing free from pulley. When spring is completely wound up, grasp the mainspring near the open end with pliers, and pull toward inner pulley lug far enough to slip open end of mainspring over inner pulley lug. Remove pulley stop nut.

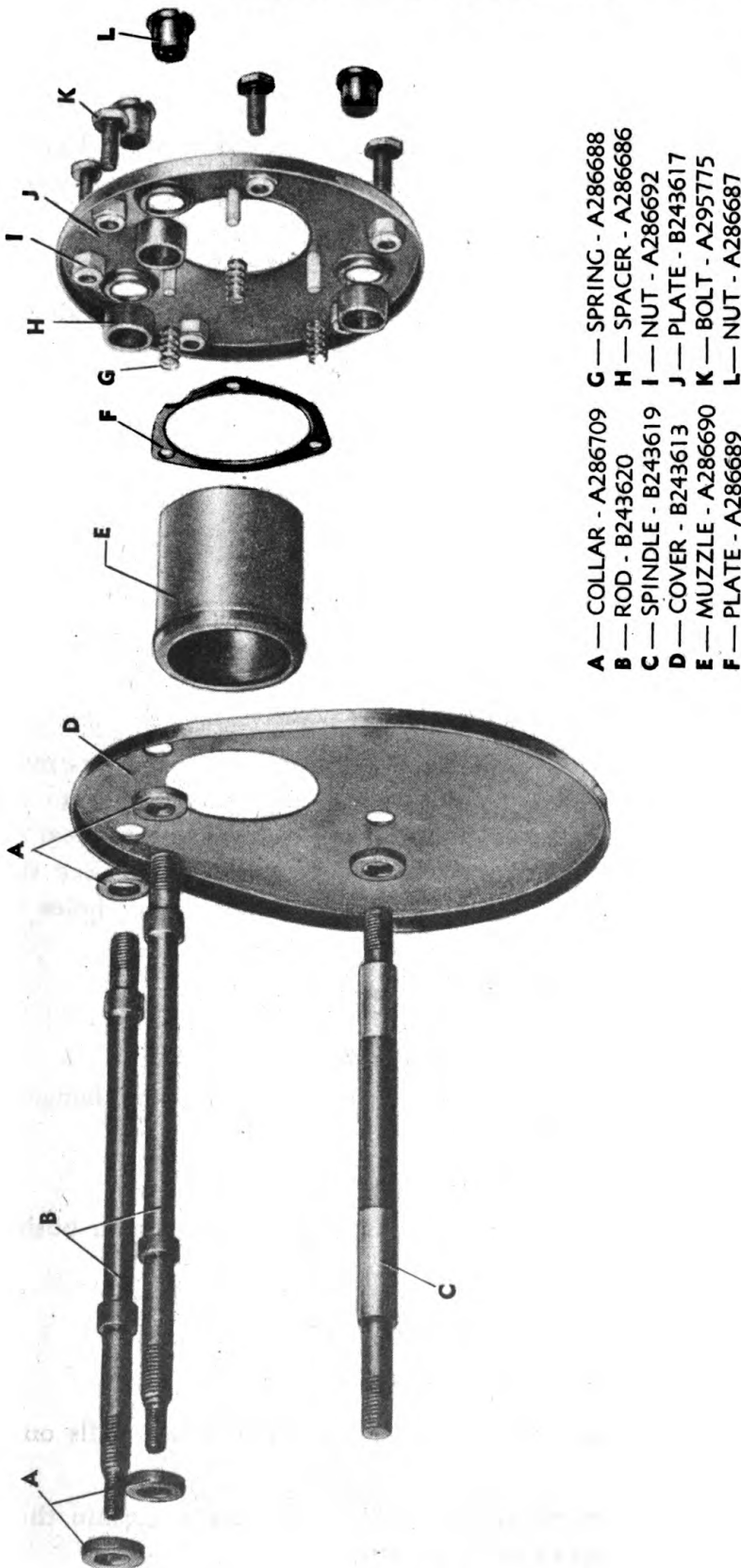
(8) Wind cable around pulley. Replace pulley guard, taking care that the proper pulley stop aperture on pulley guard engages pulley stop for this particular installation. Other installations may use different pulley stop apertures located on pulley guard.

(9) Replace index shaft washer and screw in index shaft nut. Screw in pulley stop nut.

(10) Replace discharger into position within aircraft and screw in 6 mounting bolts.

(11) Screw in cable adjuster.

DISASSEMBLY AND ASSEMBLY



RA PD 50922

Figure 22 — Discharger, Pyrotechnic, AN-M5 — Mounting Plate Group

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

c. Disassembly Of Mounting Plate Group (fig. 22).

- (1) Slide off tie rod collars from rear end of tie rods.
- (2) Use straddle screwdriver and unscrew sleeve nuts. Remove tie rods and barrel register spindle. Remove tie rod collars and barrel register collar.
- (3) Remove barrel cover and mounting plate spacers.
- (4) Slide muzzle off mounting plate and remove muzzle springs from mounting plate studs.
- (5) Slide muzzle plate off muzzle.

d. Assembly Of Mounting Plate Group.

- (1) Slide muzzle plate onto muzzle.
- (2) Place collars on tie rod and barrel register spindle.
- (3) Place muzzle plate springs on mounting plate studs.
- (4) Slide tie rods and barrel register spindle, with collars attached, through barrel cover. Replace mounting plate spacers on tie rods and spindle just ahead of barrel cover.
- (5) Insert muzzle assembly through mounting plate. Place mounting plate assembly in position just forward of the mounting plate spacers. Have semicircular cutaway on muzzle plate facing right, to clear mounting plate spacer. Insert and screw in sleeve nuts loosely. See that the mounting plate studs are positioned directly into receiver holes located on the muzzle plate. Screw in sleeve nuts tightly.
- (6) Slip tie rod collars on rear end of tie rods.

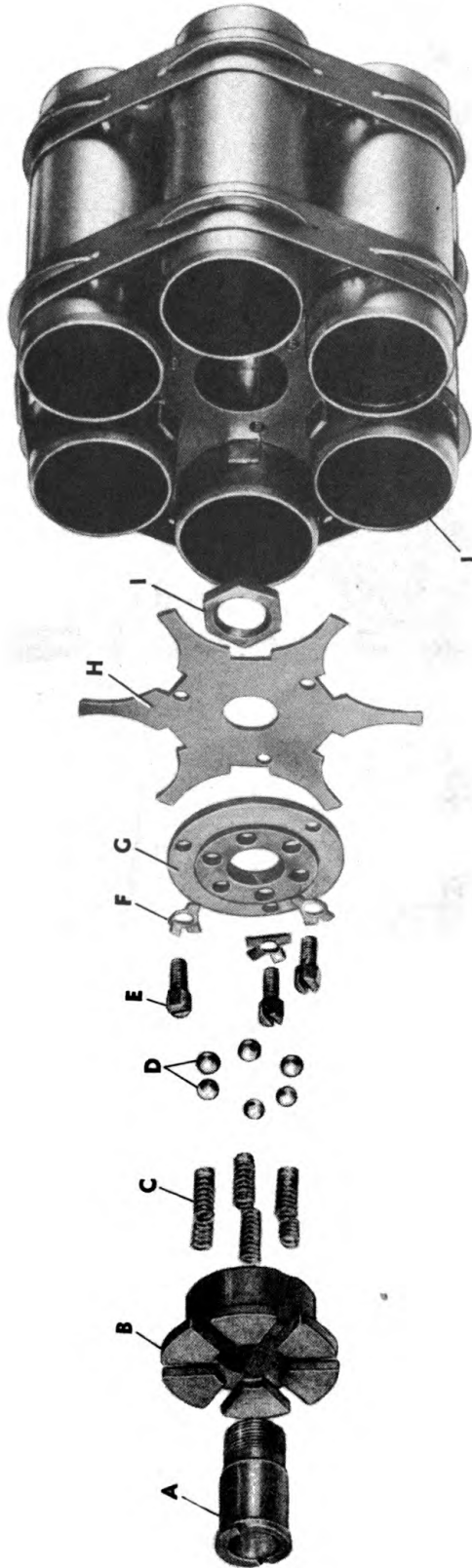
e. Disassembly Of Barrel Group (fig. 23).

- (1) Force locking laps of washer away from index flange screw. Unscrew index flange screws and remove washers.
- (2) Withdraw index mechanism assembly.
- (3) Unscrew index collar bushing nut and remove collar bushing.
- (4) Remove index collar, ball, and spring.
- (5) Remove index flange and index plate.

f. Assembly Of Barrel Group.

- (1) Replace springs in wells of index collar. Place balls on top of springs.
- (2) Position index flange on index collar. Make certain that balls mate cylinder openings of index flange.

DISASSEMBLY AND ASSEMBLY

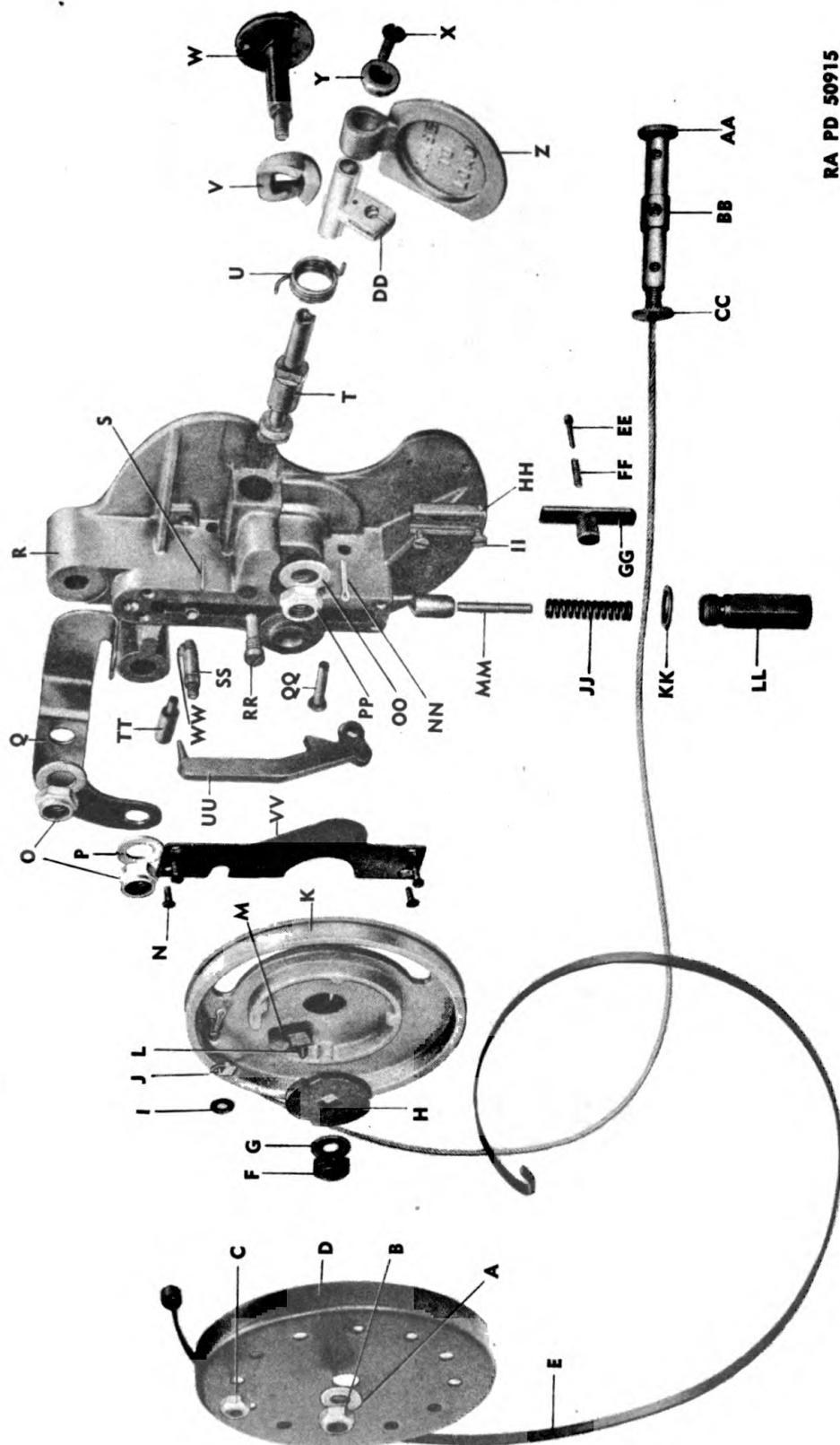


- | | |
|-----------------------|-------------------------------|
| A — BUSHING - B243630 | F — WASHER - A286706 |
| B — COLLAR - B243631 | G — FLANGE - B243632 |
| C — SPRING - A286734 | H — PLATE - B243633 |
| D — BALL - CCAX1C | I — NUT - A286668 |
| E — SCREW - A286707 | J — BARREL ASSEMBLY - C121026 |

RA PD 50916

Figure 23 — Discharger, Pyrotechnic, AN-M5 — Barrel Group

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES



RA PD 50915

Figure 24 — Discharger, Pyrotechnic, AN-M5 — Body Group

DISASSEMBLY AND ASSEMBLY

A — WASHER - A286669	Q — BRACKET - A286679	GG — TRAP CATCH ASSEMBLY - A286663
B — NUT - A286662	R — BODY - D44060	HH — SLIDE - A286667
C — NUT - A286700	S — WIRE - A295762	II — SCREW - A286655
D — GUARD - B243611	T — SPINDLE - B243621	JJ — SPRING - A286693
E — SPRING - A286681	U — SPRING - A286696	KK — HAMMER PLUNGER CAP WASHER
F — NUT - A286659	V — CAM - B243610	LL — CAP - A286695
G — WASHER - A286708	W — SHAFT - B243609	MM — PLUNGER - A286694
H — RATCHET - A286671	X — SCREW - A286660	NN — PIN - BFAX1BD
I — WASHER - A286683	Y — WASHER - A286697	OO — WASHER - A286657
J — CABLE - A295761	Z — TRAP - A286698	PP — NUT - A286699
K — PULLEY - B243615	AA — SCREW - A286702	QQ — PIN - A286654
L — SPRING - A286680	BB — ADJUSTER - B243623	RR — SCREW - A286675
M — PAWL - A286682	CC — SCREW - A286703	SS — STOP - A286676
N — SCREW - A286656	DD — LEVER - B243622	TT — STOP - A286674
O — NUT - A286699	EE — PLUNGER - A286666	UU — HAMMER - B243625
P — WASHER - A286657	FF — SPRING - A286665	VV — COVER - B243614
		WW — SCREW - A286661

RA PD 50915A

Legend For Figure 24 — Discharger, Pyrotechnic, AN-M5 — Body Group

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

(3) Insert collar bushing through index collar. Force index flange followed by index plate down on index collar, making sure that holes on flange and plate aline. Screw in bushing nut tightly.

(4) Replace index mechanism assembly into barrel assembly so that holes on index mechanism assembly aline with threaded holes in barrel assembly.

(5) Replace washer and screw in index flange screws. Force locking laps of washers against index flange screws.

g. Disassembly Of Body Group (fig. 24). Disassembly and assembly of all component parts of the body group, up to and including the body cover, are described in subparagraphs **a** and **b** above. Consequently only the disassembly and assembly of the remaining part of the body group will be treated herein.

(1) Withdraw index shaft from body assembly. Lift cam from index shaft. If it does not lift readily, it may be carefully loosened by gently prying up under the cam with a screwdriver.

(2) Unscrew hammer plunger cap. Remove hammer plunger, hammer plunger spring, and hammer plunger cap washer.

(3) Unscrew safety spindle screw and remove safety spindle washer.

(4) Raise safety spindle lever and slide body trap off safety spindle.

(5) Slide off safety spindle lever.

(6) Remove safety lever spring.

(7) Unscrew retaining screw and remove safety spindle.

(8) Grasp the protruding part of the trap catch plunger above the trap catch stud with pliers. Pull plunger into trap catch stud. Simultaneously, slide the trap catch assembly off the trap catch slide. Remove the trap catch plunger and its spring.

(9) Unscrew trap catch screws and remove trap catch slide.

(10) Remove cotter pin. Push out hammer pin and remove hammer.

(11) Unscrew pulley stop screw. Unscrew pulley stop.

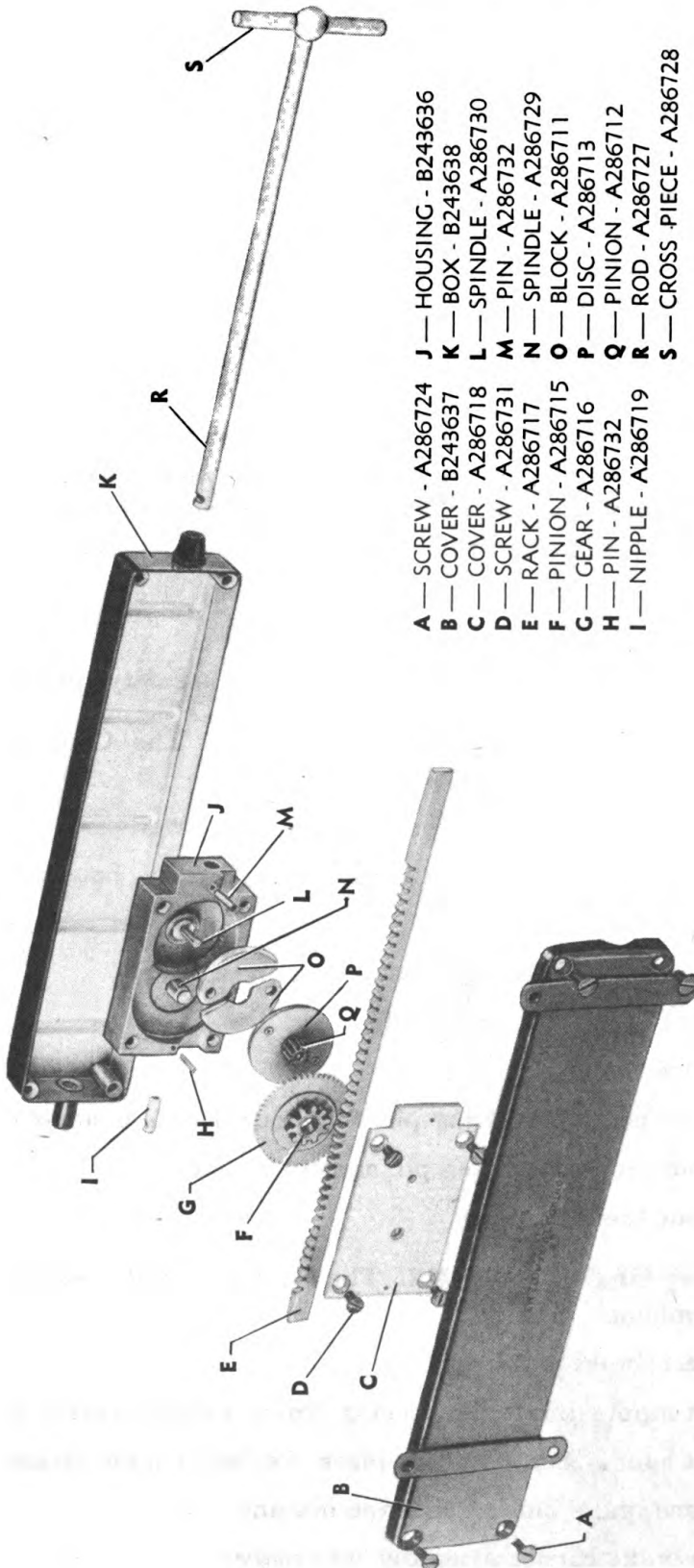
(12) Remove locking wire and slide out hammer stop.

h. Assembly Of Body Group.

(1) Replace hammer stop and insert locking wire. Twist ends of locking wire together.

(2) Screw in pulley stop and then screw in pulley stop screw.

DISASSEMBLY AND ASSEMBLY



RA PD 50923

Figure 25 — Remote Controller M2 — Parts

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

(3) Position hammer within body and insert hammer pin from left side. Replace cotter pin on hammer pin and spread cotter pin.

(4) Replace trap catch slide into position on body. Screw in trap catch screws.

(5) Replace trap catch plunger spring on trap catch plunger. Place the trap catch plunger assembly into trap catch stud. Grasp the protruding part of the plunger with pliers and pull the plunger into the trap catch stud. Slide the trap catch assembly into position on the trap catch slide.

(6) Insert safety spindle and screw in retaining screw.

(7) Slide safety lever spring onto safety lever, engaging the open end of the spring in hole on safety lever. Slide assembly onto safety spindle so that female end of the lever mates the male part of the safety spindle, when the flat part of the spindle nose faces the rear of the discharger.

(8) Raise safety lever and slide on body trap.

(9) Replace safety spindle washer and screw in safety spindle screw.

i. Disassembly Of Controller M2 (fig. 25). The Controller M2 should be disassembled in the following order:

(1) Unscrew box cover screws. Remove box cover.

(2) Unscrew housing cover screws. Remove brake housing cover.

(3) Lift out the rack.

(4) Lift out rack pinion and gear assembly.

(5) Lift out brake carrier assembly.

(6) Remove brake blocks.

(7) Lift out handle retaining pin. Slide out handle assembly.

(8) Lift out nipple retaining pin and the nipple.

(9) Lift out brake housing.

j. Assembly Of Controller M2. The Controller M2 is assembled in the following manner:

(1) Replace brake housing.

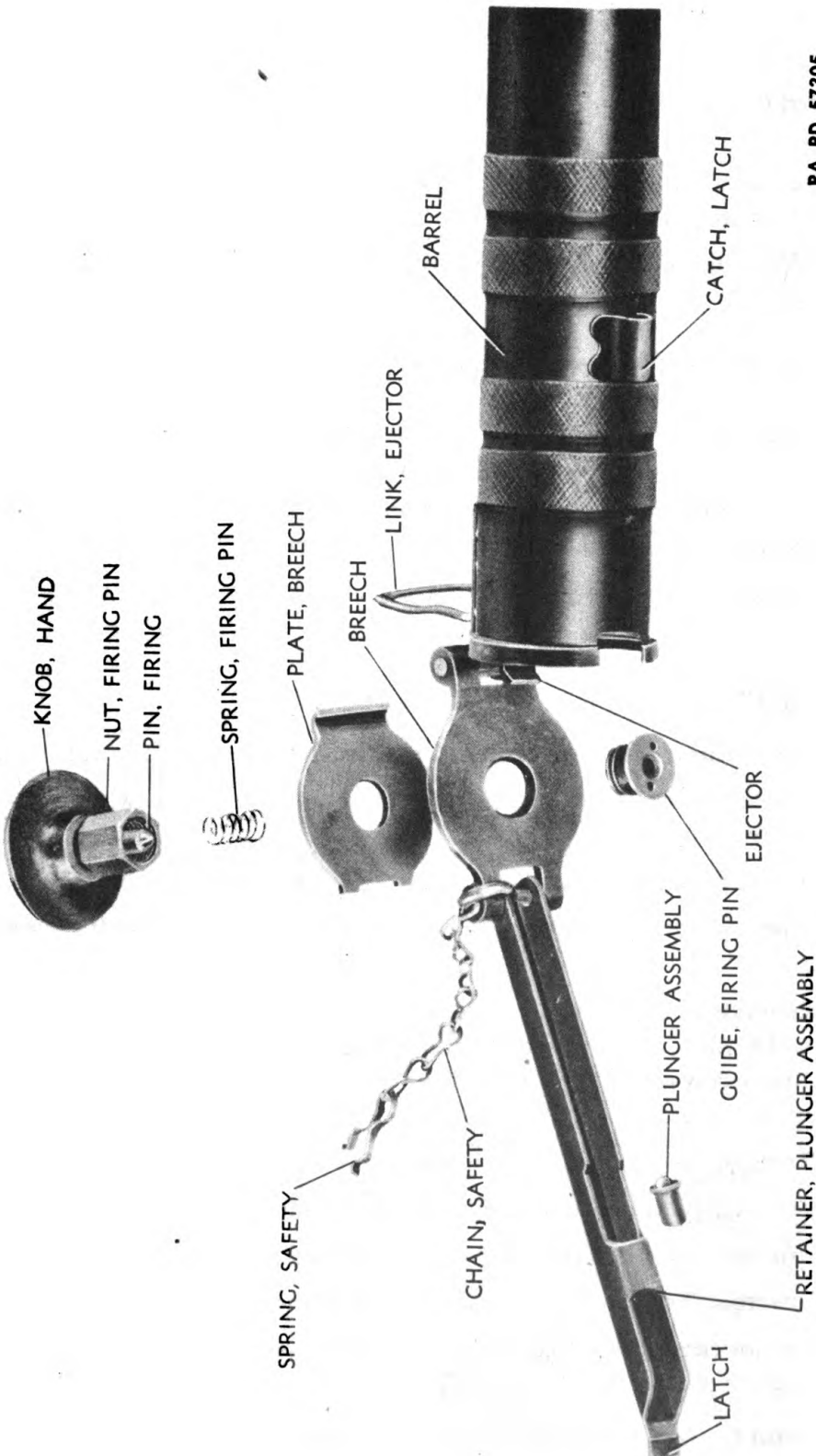
(2) Insert nipple into brake housing. Replace nipple retaining pin.

(3) Insert handle assembly into place. Replace handle retaining pin.

(4) Replace brake blocks on brake housing.

(5) Drop brake carrier assembly into place.

DISASSEMBLY AND ASSEMBLY



RA PD 57305

Figure 26 — Projector, Pyrotechnic, Hand, M9 — Parts

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

- (6) Drop rack pinion and gear assembly into place.
- (7) Fit rack into place.
- (8) Replace brake housing cover and screw housing cover screws into place.
- (9) Replace box cover and screw in box cover screws. Secure controller in place in aircraft.
- (10) With handle in normal position, take up slack in cable with cable adjuster.

11. HAND PYROTECHNIC PROJECTOR M9.

a. Disassembly (fig. 26). Unscrew the firing pin nut and remove the firing pin guide, the breech plate, the firing pin spring, and the firing pin with knob and nut. With a drift or other suitable tool, drive out the plunger assembly, taking care not to lose the parts.

b. Assembly. To assemble projector, proceed in reverse order of disassembly.

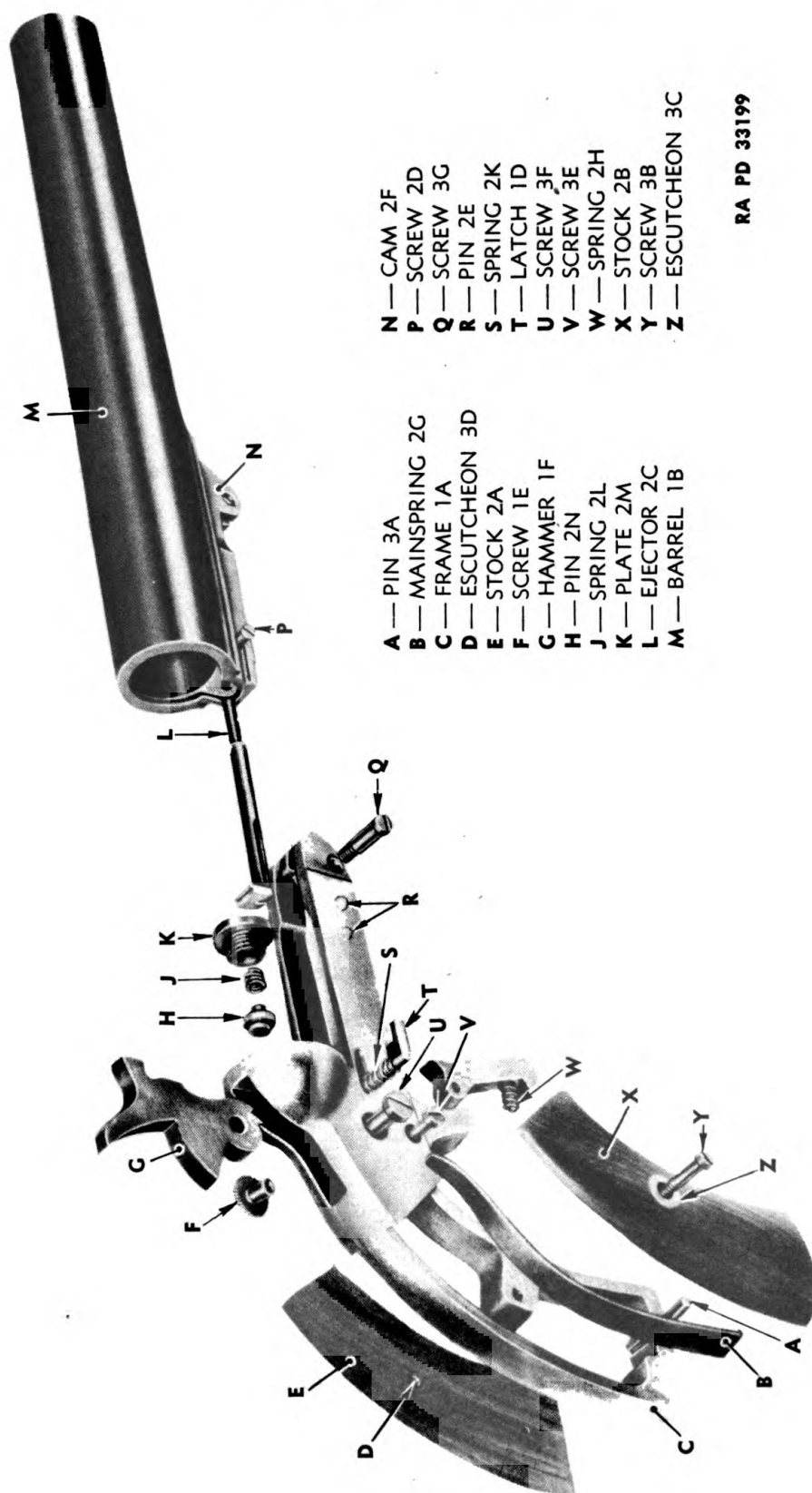
12. VERY PISTOL, 10-GAGE, MK. III (fig. 27).

a. Disassembly. The pistol should be disassembled as follows:

- (1) Unlatch barrel from frame, unscrew barrel hinge screw, and remove barrel from frame.
- (2) Unscrew ejector stop screw and remove ejector from barrel.
- (3) Unscrew barrel latch thumbscrew and remove barrel latch spring and latch.
- (4) Remove stock screw and take off right-hand and left-hand stock assemblies. Do not remove escutcheons unless necessary. To remove, drive out from reverse side. Do not remove stock pin unless necessary. To remove, drive out.
- (5) Remove mainspring from frame.
- (6) Unscrew hammer screw and remove hammer.
- (7) Unscrew trigger screw and remove trigger and trigger spring.
- (8) Unscrew the recoil plate and take out firing pin and spring.
- (9) Do not remove ejector cam as the pins are riveted. If necessary to replace, drive out rivets.

b. Assembly. To assemble the pistol, reverse the order of disassembly as follows:

DISASSEMBLY AND ASSEMBLY



- | | |
|-------------------|-------------------|
| A — PIN 3A | N — CAM 2F |
| B — MAINSPRING 2G | P — SCREW 2D |
| C — FRAME 1A | Q — SCREW 3G |
| D — ESCUTCHEON 3D | R — PIN 2E |
| E — STOCK 2A | S — SPRING 2K |
| F — SCREW 1E | T — LATCH 1D |
| G — HAMMER 1F | U — SCREW 3F |
| H — PIN 2N | V — SCREW 3E |
| J — SPRING 2L | W — SPRING 2H |
| K — PLATE 2M | X — STOCK 2B |
| L — EJECTOR 2C | Y — SCREW 3B |
| M — BARREL 1B | Z — ESCUTCHEON 3C |

RA PD 33199

Figure 27 — Pistol, Very, 10-gage, Mk. III — Parts

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

- (1) Insert trigger spring and trigger and replace trigger screw.
- (2) Replace hammer and hammer screw.
- (3) Insert mainspring in frame.
- (4) Replace right-hand and left-hand stock assemblies and stock screw.
- (5) Replace firing pin, spring, and recoil plate.
- (6) Replace barrel latch, spring, and thumbpiece.
- (7) Replace ejector and ejector stop screw.
- (8) Replace barrel in frame and insert barrel hinge screw. Close the breech.

c. Disassembly And Assembly Of The Holster. There is no disassembly or assembly of the holster after manufacture.

13. VERY PISTOL M5 (fig. 28).

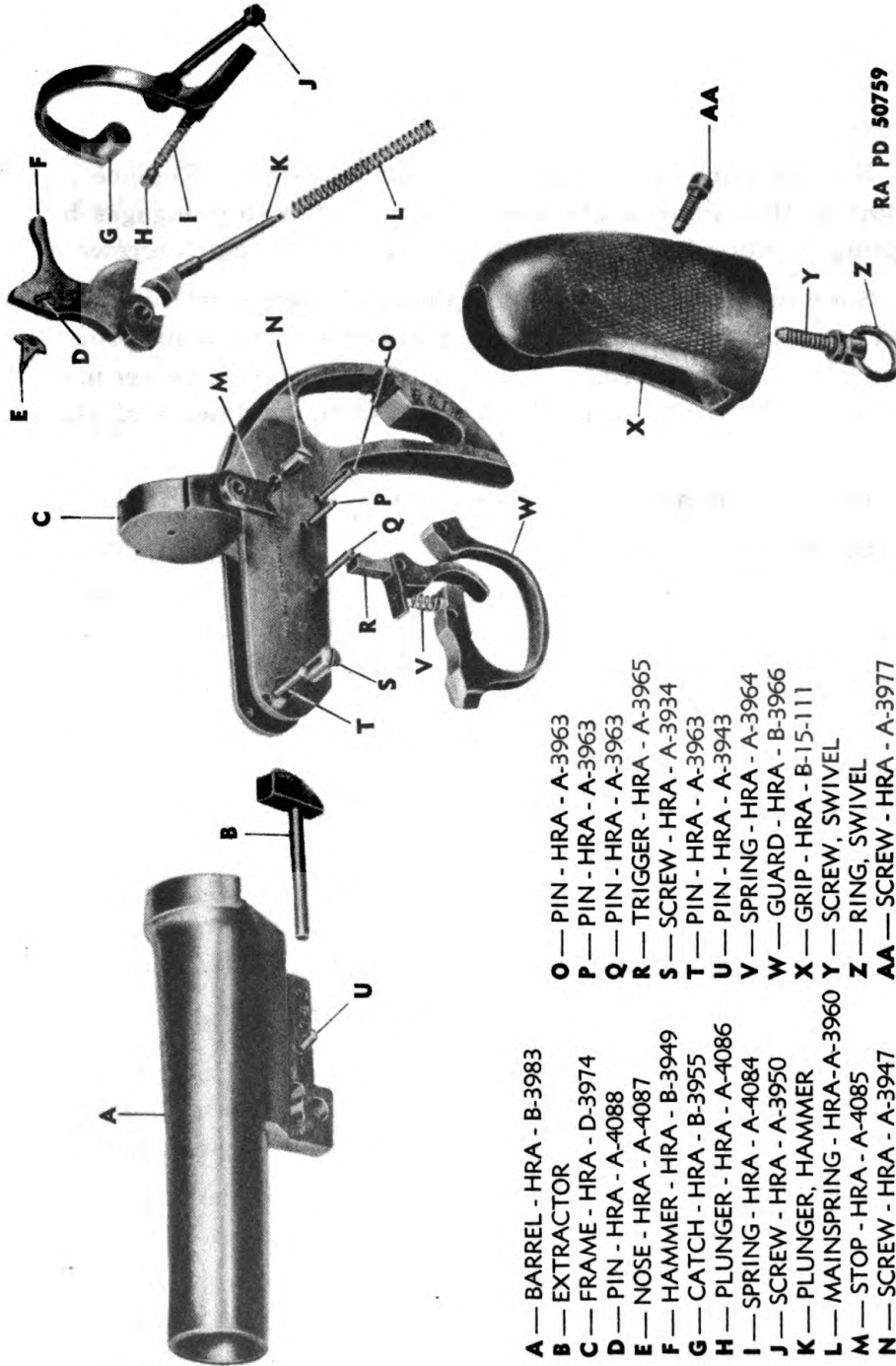
a. Disassembly And Assembly.

- (1) Unscrew stock screw and remove grip.
- (2) Unscrew swivel pin and remove swivel assembly. Do not disassemble swivel assembly unless necessary.
- (3) With hammer near full cock, align assembly hole of hammer plunger assembly with recess in frame. Insert steel wire through recess into assembly hole and release hammer. Then remove mainspring and hammer plunger together. Engage open coil end with the steel wire, by turning the hammer plunger and holding mainspring firm. Continue turning until spring is "threaded off" hammer plunger.
- (4) Unscrew barrel catch screw and remove barrel catch, taking care not to lose barrel catch plunger and spring. Remove barrel spring catch plunger and spring. Remove barrel catch stop.
- (5) Punch out extractor trip pin and unscrew joint screw. Remove barrel from frame.
- (6) Punch out extractor pin and remove extractor.
- (7) Punch out guard pin, trigger pin, and frame pin. Remove guard from frame with trigger and trigger spring.
- (8) Unscrew hammer screw and remove hammer assembly.
- (9) To remove hammer nose, drive out hammer nose pin.

b. Assembly.

- (1) Replace hammer nose and drive in hammer nose pin.

DISASSEMBLY AND ASSEMBLY



RA PD 50759

Figure 28 — Pistol, Very, M5 — Parts

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

- (2) Replace hammer assembly and screw in hammer screw.
- (3) Replace trigger and trigger spring in guard and insert in frame. Drive in trigger pin, frame pin, and guard pin.
- (4) Replace extractor and extractor pin.
- (5) Replace barrel in frame and screw in joint screw. Insert extractor trip pin.
- (6) Replace barrel catch plunger spring, and spring. Replace barrel catch stop, so that small angle side of barrel catch stop engages barrel catch spring. Position barrel catch, and screw in barrel catch screw.
- (7) Slide mainspring on hammer plunger. Insert steel wire through coils and assembly hole. Turn hammer plunger, holding mainspring firm until mainspring is "threaded on" hammer plunger. With hammer in firing position, insert hammer plunger assembly. Cock hammer and remove steel wire.
- (8) Replace grip and screw in stock screw.
- (9) Screw in swivel assembly.

Section III

INSPECTION INSTRUCTIONS

	Paragraph
General	14
Ground signal projector M1A1	15
Ground signal projector M3	16
Ground signal projector M4	17
Pyrotechnic pistol M2	18
Pyrotechnic pistol AN-M8, with mount M1	19
Pyrotechnic discharger AN-M5	20
Hand pyrotechnic projector M9	21
Very pistol, 10-gage, Mk. III	22
Very pistol M5	23

14. GENERAL.

a. The purpose of inspection is to determine the condition of the materiel and the repairs or adjustments necessary to maintain the materiel in serviceable condition.

b. Administrative procedure to be followed relative to inspection and maintenance is covered in TB 1000-1.

c. Before proceeding with the inspection, clean and oil the materiel. This is highly important because some malfunctions may be caused by improper lubrication and the presence of dirt, grit, or other extraneous matter on surfaces or in recesses of operating parts.

15. GROUND SIGNAL PROJECTOR M1A1 (fig. 13).

a. Inspection Of Projector And Support.

(1) Inspect projector and support for general appearance, loose pins, and rigidity of connections. Test action of lever and striker. Test security and functioning of support lock spring.

(2) Inspect threads on barrel and breech for dents and burs, and barrel bore for wear and cleanliness.

(3) Inspect firing pin for broken or worn point, fulcrum pin for wear, and lever for wear and burs. Inspect guard for security to breech. Inspect lanyard for wear and security of attachment to lever arm.

(4) Inspect support and spike for straightness. Inspect base and holder base for security to body. Check spike for loose parts, security to base, burred threads, and broken point. Inspect spike lock screw for burs.

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES**16. GROUND SIGNAL PROJECTOR M3 (fig. 14).****a. Inspection Of Projector.**

(1) Inspect projector for general appearance, security of barrel to base, boss to barrel, and firing pin to base. Check retentive action of ball retainer, using the body of a discharged signal.

(2) Inspect threads of barrel and base, firing pin, projector screw, and boss for burs.

(3) Inspect barrel bore for cleanliness, wear, and enlargement of ball aperture.

(4) Look for broken or worn firing pin.

(5) Inspect base for cleanliness, cracks, or chips.

(6) Check ball for deformation and spring for functioning, fracture, and set.

(7) Look for bent or loose brackets.

b. Inspection Of Sling. Inspect sling for general appearance. Check snap hooks for security to strap and snap hooks and keepers for functioning, breaks, or deformation. Inspect webbing for cuts or fraying.

17. GROUND SIGNAL PROJECTOR M4 (figs. 15 and 16).**a. Inspection Of Projector.**

(1) Inspect projector for general appearance, security of barrel to cap, and brackets to cap. Check retentive action of retaining spring, using body of a discharged signal.

(2) Inspect threads of barrel and base for burs.

(3) Inspect barrel bore for wear and cleanliness.

(4) Inspect base assembly for cleanliness, security of firing pin, broken firing pin point, and bent or broken retaining spring. All 4 prongs of spring should have equal curvature.

b. Inspection Of Sling. Inspect sling for general appearance. Check snap hooks for security on strap, and snap hooks and keepers for functioning, breaks or deformation. Inspect webbing for cuts or fraying.

18. PYROTECHNIC PISTOL M2 (fig. 17).**a. Inspection Of Pistol.**

(1) Inspect pistol for general appearance, cleanliness, and functioning. Depress safety latch and pull trigger. Check retention action of cartridge latch, using an empty barrel.

INSPECTION INSTRUCTIONS

- (2) Inspect firing pin for wear or broken point.
- (3) Inspect safety latch for wear or burs on contact surface.
- (4) Inspect trigger and sear for wear or burs on camming surfaces.
- (5) Test springs for functioning, fracture, or set.
- (6) Check trigger screw, hammer pin, and sear pin for wear.
- (7) Inspect grips for cracks or chips.
- (8) Check grip screws for tightness.
- (9) Inspect cartridge latch for wear.

19. PYROTECHNIC PISTOL AN-M8, WITH MOUNT M1 (figs. 18 and 20).

a. Inspection Of Pistol.

- (1) Inspect pistol for general appearance, cleanliness, and functioning.
- (2) Test sliding action of mount latch. Free length of mount latch spring in 1.083 inches. Check mount latch engaging nose for wear and burs.
- (3) Check breech lock for freedom of movement. Check for wear and burs on contacting face. Test spring for compressive action.
- (4) Check barrel hinge spring for bearing action on barrel hinge. Check barrel pivot stud for wear.
- (5) Test ejector for functioning.
- (6) Test function and free action of trigger with respect to hammer and trigger pawl. Check for burs. Check trigger pin for wear.
- (7) Test functioning of trigger pawl. Also check nose on trigger pawl for wear and burs. Check trigger pawl pin for wear. Examine pawl trip roller for wear, burs, and for rotational functioning.
- (8) Test hammer for functioning and free action. Test hammer for retention with trigger pawl. Check contacting surface of hammer with trigger pawl for burs and wear. Check nose of hammer for burs and wear. Check hammer pin for wear. Check all pivot pins for tightness.
- (9) Test functioning, positioning, and free action of safety lever. Check safety lever for deformation. Check hook for smoothness and wear of face contacting upper rear face of the hammer.
- (10) Test firing pin for freedom of movement in bushing, deformation, wear on rear bearing surfaces, and burs on point, or broken point. Free length of firing pin spring is 0.289 inch.

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES

- (11) Check grips for chips or cracks.

h. Inspection Of Mount (fig. 20).

- (1) Inspect mount for general appearance, cleanliness, and functioning.
- (2) Check recoil springs for wear, fracture, and set. Free length is 1.800 inches.
- (3) Inspect cover cap assembly for fit in recoil sleeve.
- (4) Check all rivets for tightness.
- (5) Check mount for proper fit on pistol barrel.
- (6) Check mount cushioning gasket for free outside diameter. Free outside diameter is $2\frac{7}{8}$ inches.

20. PYROTECHNIC DISCHARGER AN-M5 (figs. 21, 22, 23, and 25).

a. Inspection Of Discharger.

- (1) Inspect discharger for general appearance, cleanliness, and functioning.
- (2) Test retaining and sliding action of trap slide catch.
- (3) Test functioning, positioning, and free action of safety spindle. Check safety spindle for deformation, and safety spindle nose for retention of hammer when safety lever is raised, also for wear and burs. Check for weak safety lever spring.
- (4) Test hammer for functioning and free action. Test tension on hammer spring. Check cam contacting surfaces on hammer for wear and burs. Check hammer pin for wear. Check firing pin part of hammer for wear or broken point.
- (5) Check cam for wear and burs on contacting surfaces.
- (6) Check index shaft pins for wear and tightness to index shaft. Examine index shaft bushing for wear.
- (7) Examine index collar for burs and wear. Examine index collar spring for wear, fracture, and set.
- (8) Examine all nuts, screws, pins, and rivets for tightness.
- (9) Examine for broken main spring; examine pulley pawl for functioning, and pulley ratchet for wear and burs.
- (10) Inspect all exterior metal surfaces for burs.

INSPECTION INSTRUCTIONS

b. Inspection Of The Controller M2 (fig. 25).

- (1) Inspect controller for general appearance of metal, cleanliness, and functioning.
- (2) Examine for burs on metal surfaces.
- (3) Inspect rack, rack pinion, gear, brake carrier disk, and brake blocks for wear and burs.
- (4) Check box cover screws for tightness.
- (5) Check cable for loose strands and wear.
- (6) Check cable adjuster for general appearance, and cable adjuster screws for burs on threads.

21. HAND PYROTECHNIC PROJECTOR M9 (fig. 26).

a. Inspect projector for general appearance, loose parts, and rigidity of connections. Test action of latch and plunger assembly. Check action of firing pin and ejector.

b. Note whether firing pin tip is deformed or broken. Measure protrusion of firing pin. Minimum protrusion is 0.093 inch and maximum protrusion is 0.127 inch. Note whether ejector spring is broken.

22. VERY PISTOL, 10-GAGE, MK. III (fig. 27).

a. Inspection Of Pistol.

- (1) Inspect pistol for general appearance of metal, and grips for functioning. Cock the hammer and pull the trigger. Try action of barrel latch and ejector.
- (2) Open breech and observe condition of bore.
- (3) Check fit of barrel breech to front face of receiver and hinge pin for looseness.
- (4) Inspect firing pin for wear or broken point.
- (5) Try trigger screw and hammer screw for wear or looseness and ejector arm pins for security to frame.
- (6) Inspect hammer cocking notches and trigger nose for wear and burs.
- (7) Check trigger spring and mainspring for functioning, fracture, or set.

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b. Inspection Of Holster.

- (1) Inspect holster for general appearance, loose stitching, chafed or worn leather or duck.
- (2) Try functioning of flap catch.
- (3) Inspect hooks for deformation and chapes for security.
- (4) Check pressure and condition of drain eyelet.

23. VERY PISTOL M5 (fig. 28).

a. Inspection Of Pistol.

- (1) Inspect pistol for general appearance of metal, and grips for functioning. Cock hammer and pull the trigger. Try action of barrel catch and extractor.
- (2) Open breech and observe condition of bore.
- (3) Inspect fit of barrel catch on barrel and barrel hinge screw for looseness.
- (4) Inspect hammer nose pin for wear or looseness.
- (5) Try hammer screw for wear or looseness, trigger pin and extractor trip pin for security in frame.
- (6) Inspect hammer cocking notches and trigger nose for wear and burs.
- (7) Check trigger spring and mainspring for functioning, fracture, and set.

Section IV

MAINTENANCE AND REPAIR INSTRUCTIONS

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24. GENERAL.

a. The maintenance and repair of the materiel described herein is primarily a replacement of worn or broken parts.

b. Where parts or assemblies are broken or so worn as to render them unserviceable, they must be replaced from stock. If it takes more time to remove serviceable parts from a worn or damaged assembly than the parts are worth, the entire assembly should be replaced.

c. Remove burrs from screwheads, threads, and like surfaces with a fine file and chase out damaged threads with a die or tap if available. Remove burrs from smooth contacting surfaces with a fine-grained sharpening stone and finish with CLOTH, crocus. Care should be observed to file and stone evenly and lightly, and not to remove more metal than is necessary.

25. GROUND SIGNAL PROJECTOR M1A1 (fig. 13).

a. Maintenance And Repair Of Projector And Support.

(1) A cracked barrel, or one damaged so that it will not screw firmly into breech, should be replaced.

(2) If the barrel bore is worn to the extent that it allows an excess of gas from the propellant charge to escape past the signal, the barrel should be replaced.

(3) Broken or worn firing pin that will not detonate primer should be replaced.

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(4) If lever arm or breech guard are deformed to the extent that lever cannot function, the lever or breech should be replaced.

(5) If retaining groove on plug or lock is worn so that support is not held securely, it should be replaced. If spring does not function properly, it should be replaced.

(6) The countersunk heads of loose pins in support or spike should be peened. If they cannot be made secure, they should be replaced.

(7) If support or spike is bent so that projector cannot be supported properly, it should be straightened. If it cannot be straightened, it should be replaced.

(8) Burred or broken key grooves should be smoothed with a file, or the key replaced.

(9) A broken or loose base that cannot be tightened, should be replaced.

(10) If threads on spike or base cannot be repaired to hold spike securely, the deformed piece should be replaced.

26. GROUND SIGNAL PROJECTOR M3 (fig. 14).**a. Maintenance And Repair Of Projector.**

(1) A cracked barrel, or one damaged so that it will not screw firmly into base, should be replaced. If boss is loose it should be welded.

(2) If the barrel bore is worn to the extent that it allows an excess of gas from the propellant charge to escape past the signal, the barrel should be scrapped.

(3) Broken or worn firing pin that will not detonate primer should be replaced.

(4) A cracked or broken base should be replaced.

(5) A deformed ball, broken or set spring, or bent projector screw should be replaced.

(6) Loose or broken brackets should be welded or replaced.

b. Maintenance And Repair Of Sling. The web straps of the sling should be free from cuts or fraying. If damaged to the extent that there is danger of breaking a strap, assembly should be replaced. Bent snap hooks, keepers, or ring should be corrected if possible, otherwise replaced. If webbing has become dirty, it may be washed with soap and water.

MAINTENANCE AND REPAIR INSTRUCTIONS

27. GROUND SIGNAL PROJECTOR M4 (figs. 15 and 16).

a. Maintenance And Repair Of Projector.

(1) A cracked barrel, or one damaged so that it will not screw firmly into the base, should be replaced.

(2) If the barrel bore is worn to the extent that it allows an excess of gas from the propellant charge to escape past the signal, the barrel should be scrapped.

(3) Loose firing pin should be tightened. This may be done by peening. If not, replace bore assembly. If the base is cracked or the spring broken or deformed so that it will not retain signal properly, the assembly should be replaced. A bent spring prong may sometimes be corrected.

(4) A cracked cap should be scrapped.

(5) On cap of early manufacture, bent brackets should be straightened. Broken brackets or missing screws should be replaced.

(6) On cap of present manufacture, bent bracket ring should be straightened and welded if necessary. Broken ring should be replaced.

b. **Maintenance And Repair Of Sling.** The web straps of the sling should be free from cuts or fraying. If damaged to the extent that there is danger of breaking, a strap assembly should be replaced. Bent snap hooks, keepers or ring should be corrected if possible, otherwise replaced. If webbing has become dirty, it may be washed with soap and water.

28. PYROTECHNIC PISTOL M2 (fig. 17).

a. Maintenance And Repair Of Pistol.

(1) When the frame is damaged to the extent that improper functioning of the pistol results, it should be replaced.

(2) Worn or broken cartridge latch should be replaced. Weak or deformed spring should be replaced.

(3) If grips are chipped or broken to the extent of allowing dust to enter the mechanism of the pistol, they should be replaced.

(4) If hammer spring, sear spring, or trigger and latch spring do not function properly, they should be replaced.

(5) Loose pins and screws should be replaced.

29. PYROTECHNIC PISTOL AN-M8, WITH MOUNT M1 (figs. 18 and 19).

a. Maintenance And Repair Of Pistol.

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(1) A barrel that has been bent, dented, or worn to the extent that it will not lock tightly in frame, or signal cannot be inserted properly in the barrel, or in any way interferes with the proper discharge of the signal, should be replaced.

(2) Worn or broken firing pin should be replaced.

(3) If the ejector is bent or worn so that it will not function properly, it should be replaced.

(4) If mount latch is worn, or spring is weak so that the latch will not function properly, the defective part or parts should be replaced.

(5) If breech lock is worn to the extent that it does not lock properly, it should be replaced.

(6) If hammer cocking nose or trigger pawl nose are worn to the extent that they do not function properly, the hammer or trigger pawl, or both, should be replaced.

(7) If trigger slide spring, hammer spring, or firing pin spring are weak or broken, they should be replaced.

(8) Loose pins and screws that cannot be tightened should be replaced.

(9) Distorted frame, or broken or cracked grips should be replaced.

b. Maintenance And Repair Of Mount (fig. 20).

(1) Remove burs from smooth contracting metal surfaces with a fine-grained sharpening stone and finish with a CLOTH, crocus.

(2) Loose rivets should be tightened.

(3) If cover cap assembly does not fit properly in recoil sleeve, spread open cover spring for more retaining action.

(4) Distorted parts should be replaced.

(5) If recoil springs are worn or broken, they should be replaced.

(6) If free outside diameter of mount cushioning gasket exceeds $2\frac{7}{8}$ inches, it should be replaced.

30. PYROTECHNIC DISCHARGER AN-M5 (figs. 21, 22, 23, and 24).

a. Maintenance And Repair Of Discharger.

(1) Trap catch slide should have free sliding action. Remove burs on same. Trap catch spring and ball should retain trap catch slide in either close or open positions. Free length of trap slide spring is 0.450 to 0.010 inch.

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(2) If safety spindle is deformed, or safety spindle nose is worn badly, it should be replaced. If safety spindle spring is weak or broken it should be replaced. All burs on hammer should be removed.

(3) If hammer cocking surfaces are worn to the extent that hammer does not function properly, it should be replaced. If hammer is deformed or broken, replace hammer. Worn hammer pins should be replaced.

(4) All burs on cam should be removed. If cam is worn badly it should be replaced.

(5) Worn index shaft pins should be replaced.

(6) Remove burs on index collar. If worn badly, replace with new index collar.

(7) All nuts, screws, pins, and rivets that cannot be tightened should be replaced.

(8) Replace weak or broken pulley spring. Remove burs on pulley. A badly worn pulley ratchet should be replaced. If the pulley pawl shows signs of wear, it should be replaced.

b. Maintenance And Repair Of Controller (fig. 25).

(1) Follow procedure given in subparagraph a (1) above.

(2) Badly worn rack, rack pinion, gear, brake carrier disk, or brake blocks should be replaced.

(3) Tighten box cover screws.

(4) Badly worn cable or one that has numerous loose strands should be replaced.

(5) Remove burs on cable adjuster screws.

31. HAND PYROTECHNIC PROJECTOR M9 (fig. 26).

a. Replace the barrel if it is cracked or so worn that gas escapes past the signal.

b. If plunger assembly fails to lock the latch to the barrel, replace the plunger assembly.

c. If firing pin is broken or worn so that it will not fire the signal, it should be replaced. If protrusion of firing pin is less than 0.093 inch, it should be replaced.

d. Replace the firing pin spring if it fails to retract the firing pin.

e. If ejector or ejector spring are deformed or broken, they should be replaced.

ORDNANCE MAINTENANCE — PYROTECHNIC PROJECTORS, ALL TYPES**32. VERY PISTOL, 10-GAGE, MK. III (fig. 27).****a. Maintenance And Repair Of Pistol.**

(1) A barrel that has been bent, dented, or worn to the extent that it will not lock tightly in frame, or cartridge cannot be inserted properly in the barrel, or in any way interferes with the proper discharge of the signal, should be replaced.

(2) Worn or broken firing pin, or malformed recoil plate should be replaced.

(3) If ejector is bent or worn so that it will not function properly, it should be replaced.

(4) If barrel latch is worn, or spring is weak, or thumbscrew is loose so that latch will not function properly, the defective part or parts should be replaced.

(5) If hammer cocking notches or trigger nose are worn to the extent that they do not function properly, the hammer or trigger, or both, should be replaced.

(6) If trigger spring, hammer spring, or firing pin spring are weak or broken, they should be replaced.

(7) Loose pins and screws that cannot be tightened should be replaced.

(8) If ejector cam does not function properly and cannot be repaired, it should be replaced.

(9) Distorted frame or broken or cracked grips should be replaced.

b. Maintenance And Repair Of Holster.

(1) If duck body is torn or worn through, holster should be replaced. If leather tip or reinforce are torn or worn through and cannot be replaced, the holster should be replaced.

(2) Loose stitches or rips in seams of leather, duck body, or chape should be resewed.

(3) Missing drain eyelet should be replaced.

(4) Broken or missing flap catch or button should be replaced if possible, or holster scrapped.

(5) Bent or broken hooks should be straightened or replaced.

33. VERY PISTOL M5 (fig. 28).**a. Maintenance And Repair Of Pistol.**

MAINTENANCE AND REPAIR INSTRUCTIONS

- (1) A barrel that has been bent, dented, or worn to the extent that it will not lock tightly, or will not permit cartridge to be inserted properly in the barrel, or in any way interferes with the proper discharge of the signal, should be replaced.
- (2) Worn or broken hammer nose pin should be replaced.
- (3) If extractor is bent or worn so that it will not function properly, it should be replaced.
- (4) If barrel catch is worn or barrel catch plunger is worn, or barrel catch plunger spring is weak so that the latch will not function properly, the defective part or parts should be replaced.
- (5) If hammer cocking notches or trigger nose are worn to the extent that they do not function properly, the hammer or trigger, or both, should be replaced.
- (6) If trigger spring or the mainspring are weak or broken, they should be replaced.
- (7) Loose pins and screws that cannot be tightened should be replaced.
- (8) If extractor cam does not function properly and cannot be repaired, it should be replaced.
- (9) Distorted frame or broken or cracked grip should be replaced.

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Section V

SPECIAL MAINTENANCE

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34. CARE IN ARCTIC CLIMATES.

a. In temperatures below freezing, and particularly in arctic climates, it is essential that all moving parts be kept absolutely free of moisture. It has also been found that excess oil on the working parts may solidify to such an extent as to cause sluggish operation, or even complete failure.

b. The materiel should be disassembled and completely cleaned with SOLVENT, dry-cleaning, before use in temperatures below 0 F. The working surfaces of parts which show signs of wear may be lubricated by rubbing with an oiled cloth. At temperatures above 0 F, the materiel may be oiled lightly after cleaning by wiping with a slightly oiled cloth, using OIL, lubricating, preservative, light.

c. Immediately upon having been brought indoors, the materiel should be thoroughly oiled, using OIL, lubricating, preservative, light, because moisture condensing on the cold metal in a warm room will cause rusting. After the materiel has reached room temperature, it should be wiped free of condensed water vapor and oiled again.

(1) If the materiel has been fired, it should be thoroughly cleaned and oiled. The bore may be swabbed with an oiled patch and, when the materiel reaches room temperature, thoroughly cleaned and oiled as prescribed in subparagraph b above.

(2) Before firing, the materiel should be cleaned and oil removed as prescribed in subparagraph b above. The bore should be entirely free of oil before firing.

35. CARE IN TROPICAL CLIMATES.

a. Tropical Climates.

(1) In tropical climates where temperatures and humidities are high, or where salt air is present, and during rainy seasons, the materiel should

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be thoroughly inspected at frequent intervals and kept lightly oiled when not in use. The materiel should be disassembled sufficiently to enable the drying and oiling of parts.

(2) Care should be exercised to see that the unexposed surfaces are kept clean and oiled.

(3) In hot climates, OIL, lubricating, preservative, light, should be used for lubrication.

b. Hot, Dry Climates.

(1) In hot, dry climates where sand and dust are likely to get into the mechanism and bore, the materiel should be wiped clean daily, or more often if necessary. Groups should be removed and disassembled as far as necessary to facilitate thorough cleaning.

(2) Oiling and lubrication should be kept to a minimum, as oil will collect dust which will act as an abrasive. OIL, lubricating, preservative, light, is the best for lubrication where temperatures are high, and should be lightly applied only to surfaces or working parts showing signs of wear.

(3) During sand or dust storms the materiel should be kept covered.

36. PREPARING MATERIEL FOR STORAGE.

a. OIL, lubricating, preservative, light, is the most satisfactory oil for preserving this materiel. This oil is satisfactory for preserving the polished surfaces and bore for from 2 to 6 weeks, depending on climatic and storage conditions. Materiel in short term storage should be inspected every 5 days. If necessary, the preservative film should be renewed.

b. COMPOUND, rust-preventive, light, is satisfactory for preserving polished surfaces and the bore for a period of up to 1 year, depending on climatic and storage conditions.

c. Thoroughly clean with SOLVENT, dry-cleaning, all parts of the mechanism, the bore, and the exterior. Dry with rags. After drying a metal part, the bare hands should not touch it. Then coat all metal parts with either OIL, lubricating, preservative, light, or COMPOUND, rust-preventive, light, depending on the probable length of storage.

37. CLEANING MATERIEL RECEIVED FROM STORAGE.

a. Materiel which has been stored in accordance with instructions given in paragraph 36 will be coated with either OIL, lubricating, preservative, light, or COMPOUND, rust-preventive, light. Materiel received

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from ordnance storage will usually be coated with COMPOUND, rust-preventive, heavy. Use SOLVENT, dry-cleaning, to remove all traces of the compound. Apply the solvent with rag swabs to large parts, and as a bath for small parts. Take care to remove the compound from all recesses in which springs or plungers operate. After removing all traces of the compound, allow the parts to dry, and then wipe with a clean dry rag.

b. Persons handling parts after such cleaning should wear gloves to avoid leaving finger marks which are usually acid and start corrosion. SOLVENT, dry-cleaning, will attack and discolor rubber gloves.

Section VI

REFERENCES

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38. STANDARD NOMENCLATURE LISTS.**a. Maintenance.**

Cleaning, preserving and lubricating materials; recoil fluids, special oils, and miscellaneous re- lated items	SNL K-1
Soldering, brazing and welding material, gases and related items	SNL K-2
Truck, small arms repair, M1	SNL G-72

b. Projector Materiel.

Controller, remote, M2	SNL B-34
Discharger, pyrotechnic, AN-M5	SNL B-34
Pistol, pyrotechnic, M2	SNL B-18
Pistol, pyrotechnic, AN-M8, with mount M1	SNL B-33
Pistol, Very, 10-gage, Mk. III	SNL B-23
Pistol, Very, M5	SNL B-23
Projector, pyrotechnic, hand, M9	SNL B-38
Projector, signal, ground, M1	SNL B-19
Projector, signal, ground, M1A1	SNL B-40
Projector, signal, ground, M3	SNL B-24
Projector, signal, ground, M4	SNL B-24

c. Pyrotechnics, military, all types SNL S-5

Current Standard Nomenclature Lists are as tabulated here. An up-to-date list of SNL's is maintained as the "Ordnance Publications for Supply Index"..... OPSI

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39. EXPLANATORY PUBLICATIONS.

a. Ammunition.

Ammunition, general TM 9-1900

Military pyrotechnics TM 9-981

b. Maintenance.

Chemical decontamination materials and equip-
ment TM 3-220

Cleaning, preserving, lubricating, and welding
materials and similar items issued by the Ord-
nance Department TM 9-850

Decontamination, 1941 TC 38

Defense against chemical attack FM 21-40

Field inspection of ordnance materiel by service
command inspectors in continental United
States TB 1100-1

c. Pyrotechnic projectors, all types TM 9-290

d. Storage And Shipment.

Instructions for marking shipments of ordnance
general supplies IOSSC-(b)

Ordnance storage and shipment chart — group B
— major items OSSC-B

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BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
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OFFICIAL:

J. A. ULIO,
Major General,
The Adjutant General.

DISTRIBUTION: R 9(2); Bn 9(1); C 9(4).

(For explanation of symbols, see FM 21-6)

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